

# LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

## Volume 5 | Technical Appendices

CFA23-26 | Balsall Common to Curzon Street

**Ecological baseline data: amphibians, reptiles and birds  
(EC-002-004)**

Ecology

November 2013

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Department  
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# Appendix EC-002-004

Environmental topic:	Ecology	EC
Appendix name:	Ecological baseline data (CFA23, CFA24, CFA25 and CFA26): amphibians, reptiles and birds	002-004
Community forum areas:	West Midlands Met	254

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# 1 Introduction

- 1.1.1 This document is an appendix which forms part of Volume 5 of the environmental statement (ES) for the Proposed Scheme. It details ecological baseline data collected for the following community forum areas (CFA):
- CFA23: Balsall Common and Hampton-in-Arden;
  - CFA24: Birmingham Interchange and Chelmsley Wood;
  - CFA25: Castle Bromwich and Bromford; and
  - CFA26: Washwood Heath to Curzon Street.
- 1.1.2 The document should be read in conjunction with Volume 2 (Community forum area reports), Volume 3 (Route wide effects) and Volume 4 (Off-route effects).

## 2 Amphibians

### 2.1 Introduction

- 2.1.1 This section of the appendix presents details of baseline information relating to amphibians for the section of the Proposed Scheme that will pass through CFA23, CFA24, CFA25 and CFA26 inclusive.

### 2.2 Methodology

- 2.2.1 Details of the standard methodology used for amphibian surveys are provided in Ecology Technical Note: Field Survey Methods and Standards (Volume 5: Appendix CT-001-000/2).
- 2.2.2 An environmental desk study sought to identify records of amphibian species within 1km of the land required for the construction of the Proposed Scheme, and only included records of amphibian species from the last 10 years, as it was considered that records older than this would not accurately reflect the distribution of species currently present within the study area.
- 2.2.3 Desk study records for amphibians were obtained from the following sources and available documents:
- EcoRecord<sup>1</sup>;
  - Warwickshire Biological Records Centre;
  - Clemons, J. (1998), A Provisional Atlas of the Amphibians and Reptiles of Warwickshire (Amphibia:9400; Reptilia:9500) Warwickshire County Council / Coventry City Council;
  - The Wildlife Trust for Birmingham and the Black Country (2005), A Provisional Atlas of Reptiles and Amphibians of Birmingham and the Black Country. The Wildlife Trust for Birmingham and the Black Country;
  - Argus Ecology (2012) Packington CHP Facility, Little Packington Landfill Site, Warwickshire: Great Created Newt Survey Report; and
  - Amey (2012) MAC 9 Outfall Surveys: Aquatic Invertebrates Surveys, Fish and Newts Habitat Surveys - Site 5. A446 towards M6 junction 4.

### 2.3 Deviations, constraints and limitations

- 2.3.1 Table 1 provides a summary of those sites which were identified as requiring amphibian survey, but no access to the land was available to undertake this work.

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<sup>1</sup> EcoRecord; The Ecological Database for Birmingham and the Black Country (Dudley, Sandwell, Walsall & Wolverhampton); <http://www.ecorecord.org.uk/?q=home>; contacted April 2012



Table 1: Summary of locations where requirement for amphibian survey was identified but no access available for survey

Map code	Location	OS grid reference	Initial survey prescription based on scoping exercise	CFA	Approximate distance from land required for the construction of the Proposed Scheme <sup>2</sup> (m) and orientation
EC-04-051-C7	Land south of Berkswell Marsh Site of Special Scientific Interest (SSSI)	SP 22757 79291	Presence/Absence/Population Size Class Assessment	23	20m south-west
EC-04-051-C6	Land south of Berkswell Marsh SSSI	SP 22805 79529	Presence/Absence/Population Size Class Assessment	23	Within land required
EC-04-052-I8	Marsh Lane	SP 21922 79949	Presence/Absence/Population Size Class Assessment	23	120m south-west
EC-04-052-I7	Marsh Lane	SP 21997 79958	Presence/Absence/Population Size Class Assessment	23	60m south-west
EC-04-052-I7	Marsh Lane	SP 22047 79949	Presence/Absence/Population Size Class Assessment	23	40m south-west
EC-04-052-H8	Marsh Lane Nature Reserve	SP 21747 80363	Presence/Absence/Population Size Class Assessment	23	140m south-west
EC-04-052-G8	Marsh Lane Nature Reserve	SP 21623 80639	Presence/Absence/Population Size Class Assessment	23	130m south-west
EC-04-052-G4	Mercote Mill Farm	SP 22442 80778	Presence/Absence/Population Size Class Assessment	23	210m north-east
EC-04-053-H6	Park Farm	SP 20751 83229	Presence/Absence/Population Size Class Assessment	24	Within land required
EC-04-053-L1-G2	Pond south-east of Longacre Farm	SP 19434 82861	Presence/Absence/Population Size Class Assessment	24	110m south-west
EC-04-054a-H5	Southern pond at Coleshill & Bannerly Pools SSSI	SP 19900 85839	Presence/Absence/Population Size Class Assessment	24	100m east

2.3.2 The following water bodies were subject to deviation from the standard methodology, as they did not receive two visits during the period of mid-April to mid-May:

- pond at A452 Kenilworth Road roundabout (Map EC-04-051-B7, Volume 5, Map Book Ecology), as access constraints prevented surveys from commencing before mid-May 2013. Three surveys were completed on 21, 28 and 30 May, with the fourth completed on 25 June 2013;
- pond between the A452 Kenilworth Road and the B4102 Meriden Road (Map EC-04-070-E4, Volume 5, Map Book Ecology), as access constraints prevented surveys from commencing until just before mid-May. The second planned

<sup>2</sup> The phrase 'Within land required' represents an abbreviation of this term

mid-May survey was cancelled by the land owner on the day of survey. Further surveys were completed in May and June 2013;

- pond at Vauxhall (Map EC-04-070-J5, Volume 5, Map Book Ecology), as access constraints prevented surveys from being undertaken within the prescribed time period. One survey was completed on 25 March 2013, and three further surveys were completed 28 to 30 May 2013. Additionally, the banks were too steep to allow safe access to the pond edge. Consequently, the pond was surveyed four times from the top of the bank using torches, and by inspecting artificial refuges (discarded wooden boards, plastic and metal signage) already present on the ground around the banks of the pond; and
- the eight ponds at SITA Packington Landfill (Map EC-04-054a, Volume 5, Map Book Ecology) were surveyed by Argus Ecology in 2012 as part of a separate project, however the data was collected in a manner consistent with the methodology required for the assessment of the Proposed Scheme and was therefore considered to be sufficiently up to date and reliable and to remain valid and to be included in the baseline. Four ponds supported GCN (040-AA1-158002/004/005/009). The results from Argus Ecology were mapped alongside the data collected during 2012 and 2013 field surveys.

## 2.4 Baseline

### Scoping

- 2.4.1 An initial scoping exercise was conducted according to the methodology identified with the Technical Note HS2 Ecological Surveys: Field Survey Methods and standards and considered the potential for impacts. This considered the potential for impacts on all water bodies located within 500m of the land required for the construction of the Proposed Scheme.
- 2.4.2 For the vast majority of the alignment, losses associated with those ponds located more than 250m from the land required for the construction of the Proposed Scheme are unlikely to be significant. In most cases, loss of habitat to the Proposed Scheme was not considered likely to result in adverse effects on amphibian populations centred on ponds located more than 250m from the land required for the construction of the Proposed Scheme.
- 2.4.3 Those water bodies occurring more than 250m from the land required for the construction of the Proposed Scheme were scoped as requiring survey where they:
- were linked to the land required for the construction of the Proposed Scheme by large areas of accessible terrestrial habitat of equal or greater suitability than that available closer to the water body
  - were likely to be subject to moderate or major fragmentation effects; or
  - provided potentially important information about the likely use by, and distribution of, amphibians amongst other ponds in the wider area.

2.4.4 Table 2 identifies those ponds located more than 250m from the land required for the construction of the Proposed Scheme and sets out the reasons why they were considered for survey.

Table 2: Water bodies located more than 250m from the land required for the construction of the Proposed Scheme and the reason for surveys

Map code	Location	OS grid reference	Brief rationale for scoping in	CFA	Distance from land required for the construction of the Proposed Scheme <sup>3</sup> (m) and orientation
EC-04-050b-C8	Land south of Berkswell Station	SP 24920 76840	Part of a local network of ponds, not all of which had guaranteed access. Surveying this pond allowed better understanding of local amphibian distributions.	23	270m south-west
EC-04-050b-B8	Land south of Berkswell Station	SP 24575 77097	Part of a local network of ponds, not all of which had guaranteed access. Surveying this pond allowed better understanding of local amphibian distributions.	23	350m south-west
EC-04-050b-B8	Land south of Berkswell Station	SP 24491 77145	Part of a local network of ponds, not all of which had guaranteed access. Surveying this pond allowed better understanding of local amphibian distributions.	23	380m south-west
EC-04-050b-B8	Land south of Berkswell Station	SP 24440 77288	Part of a local network of ponds, not all of which had guaranteed access. Surveying this pond allowed better understanding of local amphibian distributions.	23	270m south-west
EC-040-051-15	Land north of Moat House Farm	SP 24796 78200	Part of a local network of ponds, not all of which had guaranteed access. Surveying this pond allowed better understanding of local amphibian distributions.	23	270m east
EC-040-051-G4	Lavender Hall Lane	SP 2444 7888	Part of a local network of ponds, not all of which had guaranteed access. Surveying this pond allowed better understanding of local amphibian distributions.	23	270m north-east
EC-04-052-D4	A452 Kenilworth Road/ B4102 Meriden Road, north of Blythe SSSI	SP 21932 82018	Change of the land required for the construction of the Proposed Scheme once surveys underway meant that this pond ended up being more than 250m away	23	400m north-east
040-AA1-155004	Land south of Pasture Farm	SP 20602 82433	The incidental sighting of a great crested newt (GCN) during reptile surveys undertaken by Arup in 2012 indicated the pond formed part of a network of ponds in the area with known GCN presence. Surveying this pond identified it to be used for breeding GCN and thus allowed better understanding of local amphibian distributions.	23	300m south east

<sup>3</sup> The phrase 'Within land required' represents an abbreviation of this term

## Field survey

### HSI/walkover

- 2.4.5 Following the completion of walkover surveys, incorporating Habitat Suitability Index (HSI) surveys where appropriate, the water bodies identified in Table 3 were scoped out of the assessment.
- 2.4.6 Ponds which are marked on Map series EC-04 (Volume 5, Map Book Ecology) as 'Scoped out - no survey required' but are not referenced in Table 3 were scoped out prior to site visit on the basis of there being barriers to amphibian movement between the water body and the Proposed Scheme, such as motorways and large watercourses and fast-flowing rivers. Two ponds were also scoped out at SITA Packington Landfill site (Map EC-04-054a-I4 and EC-04-054a-J5, Volume 5, Map Book Ecology) as both features were identified as slurry and compost catchment pits during a site visit on 18/12/2012 and so were unsuitable for GCN.

Table 3: Summary of locations where requirement for further survey was scoped out following walkover survey

Map code	Location	OS grid reference	Brief rationale for scoping out (HSI score)	CFA	Distance from land required for the construction of the Proposed Scheme <sup>4</sup> (m) and orientation
EC-04-051-H5	Land south-west of Lower Farm	SP 24626 78391	This was a slurry storage pool and was unsuitable for amphibians (0.43).	24	240m north-east
EC-04-053-G6	Land south of Park Farm	SP 20667 83568	This was a marshy pool joined to the river with a current running through and was unsuitable for amphibians (0.53).	24	Within land required
EC-04-053-I3	Land east of Stonebridge	SP 21788 82996	This was permanently dry and therefore unsuitable for amphibians (none available).	24	230m north-east
EC-04-053-B4	Land east of A446 Stonebridge Road within SITA Packington Landfill	SP 20340 28554	This was a run-off storage pond for SITA Packington Landfill containing compost and slurry. The waterbody was considered unsuitable for amphibians (none available).	24	160m east
EC-04-053-C4	Land east of A446 Stonebridge Road within SITA Packington Landfill	SP 20309 85224	This was a run-off storage pond for SITA Packington Landfill containing compost and slurry. The waterbody was considered unsuitable for amphibians (none available).	24	80m east
EC-04-068a-I9	Castle Bromwich Hall and Gardens	SP1381 8956 and Sp1395 8969	Two ponds within grounds separated from scheme by A452 and M6 slip road	25	500m south
EC-04-069-E5	A47 – Heartlands Parkway	SP 09457 88762	This pond at the time of survey had a fast through flow to the point which would preclude the possibility of amphibian breeding. Additionally, the pond has high	26	Within land required

<sup>4</sup> The phrase 'Within land required' represents an abbreviation of this term

Map code	Location	OS grid reference	Brief rationale for scoping out (HSI score)	CFA	Distance from land required for the construction of the Proposed Scheme <sup>4</sup> (m) and orientation
			concrete sides which do not allow for amphibian egress, except into the Grand Union Canal Site of Importance to Nature Conservation (SLINC), which is considered to be a barrier to amphibian movement (o.26).		
EC-040-069-F4	West of Nechells gas holders	SP 09658912	Two ponds separated from the scheme by the Grand Union Canal, which is considered to be a barrier to amphibian movement	26	15m west

*Presence/absence and population size class estimate surveys*

- 2.4.7 All ponds surveyed are shown on the Map series EC-04 (Volume 5, Map Book Ecology) but only the ponds where amphibians were recorded are presented in Table 4 below. The results are from amphibian presence/absence (PA) and population size class (PSC) estimate surveys.

Table 4: Summary of results from amphibian presence/absence and population size class estimate surveys where amphibians were found to be present

Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
EC-04-050b-D5	Beechwood Farm	SP 25502 77312	PA	4	09 April 2013	02 May 2013		1(L)		5(L)		23	60m north-east
EC-04-050b-D8	Land north of Labernum Farm and Waste Lane	SP 25119 76797	PA	4	03 April 2013	22 May 2013					1(L)	23	190m south-west
EC-04-050b-C6	Beechwood Farm	SP 25286 77140	PA	4	09 April 2013	02 May 2013				4(L)	11(L)	23	Within land required
EC-04-050b-C6	Land south of Moat Farm and west of Beechwood Farm	SP 25209 77447	PA	4	17 April 2013	08 May 2013					100(G)	23	30m north-east
EC-04-050b-C8	Land south of Berkswell Station	SP 24886 76993	PA	4	03 April 2013	22 May 2013				2(L)		23	270m south-west
EC-04-050b-C5	Land south of Moat Farm and west of Beechwood Farm	SP 25262 77499	PA	4	17 April 2013	08 May 2013		1(L)			4(L)	23	80m north-east
EC-04-050b-B8	Land south of Berkswell Station	SP 24746 77204	PA	4	03 April 2013	22 May 2013		1(L)		2(L)		23	160m south-west
EC-04-	Land south of	SP 24575	PA	4	03 April	22 May		3(L)				23	350m south-west

<sup>5</sup> Survey times comprise either presence/absence (PA) or population size class (PSC). An incidental record describes an individual observed under terrestrial refugia during reptile survey.<sup>6</sup> The phrase 'Within land required' represents an abbreviation of this term

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Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
050b-B8	Berkswell Station	77097			2013	2013							
EC-04-050b-B8	Land south of Berkswell Station	SP 24669 77262	PA	4	03 April 2013	22 May 2013		2(L)				23	190 south-west
EC-04-050b-B8	Land south of Berkswell Station	SP 24491 77145	PA	4	03 April 2013	22 May 2013		2(L)				23	380m south-west
EC-04-050b-B8	Land south of Berkswell Station	SP 24440 77288	PA	4	03 April 2013	22 May 2013		2(L)				23	270m south-west
EC-04-050b-B8	Land south of Berkswell Station	SP 24479 77354	PA	4	03 April 2013	22 May 2013		2(L)				23	200m south-west
EC-04-051-I5	North-west of Moat House Farm	SP 24748 78134	PA	4	03 April 2013	23 April 2013				3(L)		23	200m north-east
EC-04-051-I5	North-west of Moat House Farm	SP 24796 78200	PA	4	03 April 2013	23 April 2013		1(L)				23	270 north-east
EC-04-051-I7	Lavender Hall Fisheries	SP 24347 77757	PA	4	26 April 2012	06 June 2012					1(L)	23	60m south west
EC-04-051-I6	Land on Baulk Lane	SP 24565 78060	PA	4	03 April 2013	23 April 2013		25(G)		5(L)	13(L)	23	20m north-east
EC-04-051-H7	Lavender Hall Fisheries	SP 24277 77875	PA	4	26 April 2012	06 June 2012				3(L)	2(L)	23	20m south-west
EC-04-051-H5	Land south-west of Lower Farm	SP 24650 78253	PA	4	03 April 2013	23 April 13				16(L)	4(L)	23	180m north-east
EC-04-051-H7	Lavender Hall Fisheries	SP 24245 77836	PA	4	26 April 2012	06 June 2012				2(L)		23	70m south-west

Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
EC-04-051-H7	Land west of Baulk Lane, next to brook	SP 24382 77966	PA	4	03 April 2013	23 April 2013				2(L)		23	10m north-east
EC-04-051-G7	Land north-west of Lavender Hall Farm	SP 23892 78177	PA	4	18 April 2013	08 May 2013		17(G)			1(L)	23	20m south-east
EC-04-051-G5	Land south-west of Lower Farm	SP 24214 78582	PA	4	03 April 2013	23 April 2013					1(L)	23	10m north-east
040-AA1-150007	Lavender Hall Lane/Park Lane	SP 23707 78195	PSC	6	04 April 2013	08 May 2013	2(L)			1(L)		23	20m south-west
040-AA1-150009	Lavender Hall Lane/Park Lane	SP 23674 78230	PSC	6	04 April 2013	08 May 2013	17(M)	20(G)		1(L)	45(L)	23	20m south-west
EC-04-051-E8	Land at junction between Park Lane and A452 Kenilworth Road	SP 23267 78640	PA	4	27 April 2012	23 May 2012		11(G)				23	10m south-west
EC-04-051-C5	Wood east of Berkswell Marsh SSSI	SP 23130 79554	PA	3 (pond dry on 4th visit)	25 April 2013	21 May 2013		1(L)		1(L)		23	210m north-east
EC-04-051-B7	A452 Kenilworth Road roundabout	SP 22185 79569	PA	4	21 May 2013	25 June 2013		7(L)				23	130m south-west
EC-04-051-B7	Land north of Bradnock's Marsh	SP 22285 79559	PA	4	08 April 2013	30 April 2013		3(L)				23	30m south-west
EC-04-052-I8	Land south of Marsh Lane and west of A452 Kenilworth Road	SP 21908 79837	PA	4	08 April 2013	30 April 2013					3(L)	23	200m south-west



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Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
EC-04-052-G7	Marsh Lane Nature Reserve	SP 21784 80541	PA	4	08 April 2013	02 May 2013		2(L)		1(L)	6(L)	23	40m south-west
EC-04-052-G7	Marsh Lane Nature Reserve	SP 21767 80809	PA	4	08 April 2013	02 May 2013		2(L)			100(G)	23	20m south-west
EC-04-052-F4	Land north-west of Hornbrook Farm between the A452 Kenilworth Road /Cornets End Lane	SP 22264 81392	PA	4	15 May 2013	29 May 2013		1(L)				23	10m north-east
EC-04-052-E3	Land south of A45 Birmingham Road and east of A452Kenilworth Road	SP 22229 81834	PA	4	15 May 2013	29 May 2013		6(L)			1(L)	23	150m north-east
EC-04-052-E4	A452 Kenilworth Road/ B4102Meriden Road	SP 22106 81844	PA	4	21 May 2013	11 June 2013		7(L)		3(L)		23	180m north-east
EC-04-052-D3	Land south of A45Birmingham Road and east of A452 Kenilworth Road	SP 22182 81923	PA	4	15 May 2013	29 May 2013		12(G)		1(L)		23	240m north-east
EC-04-052-D4	A452 Kenilworth Road/ B4102Meriden Road	SP22100 81900	PA	4	21 May 2013	11 June 2013		4(L)		2(L)	1(L)	23	240m north-east
EC-04-052-D4	A452Kenilworth Road/ B4102 Meriden Road, north of River Blythe	SP 21932 82018	PA	4	09 April 2013	30 May 2013		27(G)		1(L)		23	400m north-east

Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
	SSSI(												
EC-04-052-D5	A452Kenilworth Road/ B4102 Meriden Road, north of River Blythe SSSI	SP 21681 81865	PA	4	09 April 2013	30 May 2013		33(G)		1(L)	1(L)	23	140m north-east
EC-04-052-D6	Mouldings Green Farm, Hampton-in- Arden, Local Wildlife Site (LWS)	SP 21444 81741	PA	4	09 April 2013	28 May 2013				1(L)		23	Within land required
EC-04-052-D6	Mouldings Green Farm, Hampton-in- Arden LWS	SP 21427 81729	PA	4	09 April 2013	28 May 2013				1(L)		23	Within land required
EC-04-052-A4	Land south of A45Birmingham Road and east of A452Kenilworth Road	SP 21546 83068	PA	3 (site made inaccessible after 3rd visit)	13 May 2013	23 May 2013				1(L)	3(L)	24	30m north-east
EC-04-052-A7	Land south of Pasture Farm	SP 20841 82591	PA	4	16 May 2013	10 June 2013				3(L)		23	50m south-west
040-AA1-155004	Land west of Pasture Farm	SP 20602 82433	PSC	6	16 May 2013	10 June 2013	5(L)	4(L)				23	300m south-west
EC-04-052-A7	Pasture Farm	SP 20740 82725	PA	4	15 April 2013	09 May 2013				1(L)	2(L)	23	100m south-west
040-AA1-155009	Land west of Pasture Farm	SP 20659 82701	PSC	6	16 May 2013	10 June 2013	2(L)	4(L)		2(L)	7(L)	23	180m south-west

Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
040-AA1-155010	Land south of Pasture Farm	SP 20771 82492	Incidental		August 2012		1					23	130m south-west
EC-04-053-G6	Land south of Park Farm	SP 20817 83408	PA	4	01 May 2013	25 May 2013				1(L)		24	Within land required
EC-04-053-G4	Land east of A452 Chester Road, and Park Farm	SP 21140 83900	PA	4	12 May 2013	29 May 2013				1(L)		24	120m north-east
EC-04-053-F7	Hollywell Brook west of Middle Bickenhill Lane	SP 20228 83711	PA	4	04 April 2013	01 May 2013					16(L)	24	Within land required
EC-04-053-E10	Land north of Pendigo Lake	SP 19504 83712	PA	4	09 April 2013	07 May 2013		1(L)				24	80m south-west
EC-04-053-E4	Land east of A452 Chester Road and north of Packington Lane	SP 20838 84459	PA	4	13 May 2013	24 May 2013					50(L)	24	120m north-east
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20288 84262	PA	4	08 April 2013	07 May 2013		2(L)				24	Within land required
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20370 84338	PA	4	08 April 2013	07 May 2013		11(G)				24	Within land required
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20352 84334	PA	4	08 April 2013	07 May 2013		10(G)				24	Within land required
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20250 84255	PA	4	08 April 2013	07 May 2013		28(G)				24	Within land required

Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20250 84288	PA	4	08 April 2013	07 May 2013		20(G)				24	Within land required
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20198 84271	PA	4	08 April 2013	07 May 2013		25(G)		1(L)		24	Within land required
EC-04-053-E7	Land west of Denbigh Spinney LWS	SP 20166 84260	PA	4	08 April 2013	07 May 2013		40(G)				24	Within land required
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20196 84333	PA	4	08 April 2013	07 May 2013		10(G)				24	Within land required
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20190 84349	PA	4	08 April 2013	07 May 2013		28(G)				24	Within land required
EC-04-053-E6	Land west of Denbigh Spinney LWS	SP 20158 84324	PA	4	08 April 2013	07 May 2013		6(L)				24	Within land required
EC-04-053-D5	Land east of A452 Chester Road and west of Packington Lane	SP 20390 84705	PA	4	13 May 2013	24 May 2013		4(L)			4(L)	24	Within land required
EC-04-053-C8	Land north of the National Exhibition Centre (NEC)	SP 19473 84612	PA	4	18 April 2013	15 May 2013		2(L)				24	230m south-west
EC-04-053-C8	Land north of the NEC	SP 19367 84833	PA	4	18 April 2013	15 May 2013		7(L)				24	190m south-west
EC-04-053-B8	Car park between B4438 Bickenhill Parkway and Blackfirs	SP 19464 85074	PA	4	08 May 2013	23 May 2013				1(L)		24	20m south-west

Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
	Lane												
EC-04-054a-H7	Land north of Coleshill Pool Wood LWS	SP 19598 85792	PA	4	05 April 2013	24 April 2013		1(L)			1(L)	24	Within land required
040-AA1-159001	Northern pond at Coleshill & Bannerly Pools SSSI	SP 19891 86247	PSC	6	29 April 2013	30 May 2013	2(L)	22(G)		4(L)	11(L)	24	100m east
EC-04-054a-G7	Land north of Coleshill Pool Wood LWS	SP 19524 86090	PA	4	05 April 2013	24 April 2013		1(L)			600(G)	24	Within land required
EC-04-054a-G7	Land north of Coleshill Pool Wood LWS	SP 19455 86151	PA	4	05 April 2013	24 April 2013					48(L)	24	Within land required
EC-04-054a-G7	Land north of Coleshill Pool Wood LWS	SP 19295 86165	PA	4	05 April 2013	24 April 2013					11(L)	24	10m west
EC-04-054a-F7	Land north of Coleshill Pool Wood LWS	SP 19246 86390	PA	4	05 April 2013	24 April 2013					140(G)	24	Within land required
040-AA1-165001	Park Hall Site of Importance for Nature Conservation (SINC)	SP 16136 90944	PSC	6	02 May 2012	12 June 2012	1(L)	6(L)			2(L)	25	Within land required
EC-04-067-H6	Park Hall SINC	SP 16102 90938	PA	4	02 May 2012	12 June 2012		9(L)			4(L)	25	Within land required
040-AA1-165004	Park Hall SINC	SP 15932 90846	PA	6	02 May 2012	12 June 2012	3(L)	4(L)				25	Within land required
040-AA1-165005	Park Hall SINC	SP 15912 90921	PSC	6	02 May 2012	12 June 2012	6(L)	13(L)				25	Within land required

Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
EC-04-067-H5	Land north of Park Hall SINC	SP 15891 91150	PA	4	10 April 2013	01 May 2013		6(L)			2(L)	25	10m north
EC-04-067-G6	Park Hall SINC	SP 15781 90797	PA	4	16 May 2012	12 June 2012		1(L)				25	Within land required
040-AA1-166001	Park Hall SINC	SP 15662 90819	PSC	6	02 May 2012	12 June 2012	1(L)	4(L)		7(L)	3(L)	25	Within land required
EC-04-067-G4	Land north of Park Hall SINC	SP 15692 91276	PA	4	10 April 2013	01 May 2013				11(L)		25	140m north
040-AA1-166004	Park Hall SINC	SP 15732 90926	Incidental	n/a	29 May 2012		1						Within land required
EC-04-067-F6	Park Hall SINC	SP 15415 90693	PA	4	02 May 2012	29 May 2012					2(L)	25	Within land required
EC-04-067-E7	Park Hall SINC	SP 14875 90415	PA	4	16 May 2012	10 June 2013		9(L)		1(L)		25	Within land required
EC-04-067-E6	Park Hall SINC	SP 14906 90490	PA	4	16 May 2012	12 June 2012				2(L)	13(L)	25	Within land required
EC-04-0670-E7	Park Hall SINC	SP 14831 90440	PA	4	16 May 2012	12 June 2012				1(L)	1(L)	25	Within land required
EC-04-067-E7	Park Hall SINC	SP 14816 90410	PA	4	25 March 2013	10 June 2013		2(L)				25	Within land required
EC-04-067-D7	Park Hall SINC	SP 14737 90354	PA	4	25 March	10 June 2013				5(L)	28(L)	25	Within land required

# Appendix EC-002-004

Ecology survey code or map code	Location	OS grid reference	Survey type <sup>5</sup>	No. of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					CFA	Distance from land required for the construction of the Proposed Scheme <sup>6</sup> (m) and orientation
							Great crested newt (GCN)	Smooth newt	Palmate newt	Common frog	Common toad		
					2013								
EC-04-069-F5	Watson Road, Birmingham	SP 09799 89083	Incidental	-	24 June 2013	n/a		1(L)				26	10m north-west

Key:

Bracketed text within species column indicates the relevant population size class for the peak count obtained as follows:

Great crested newt - (H) = High; (M) = Medium; (L) = Low;

Smooth and palmate newt = peak count less than 10 = Low (L); peak count 10-100 = Good (G); peak count over 100 = Exceptional (E).

Common frog = spawn clumps counted less than 50 = Low (L); 50-500 = Good (G); greater than 500 = Exceptional (E)

Common toad = peak count of less than 100 = Low (L); peak count 100-1000 = Good (G); peak count greater than 1000 = Exceptional (E)

N.B. a full six visits are required in order to obtain a robust population size class assessment for GCN. However, an indication of the corresponding size class category is shown here for all peak counts in order to show the minimum size class known to be present at those sites where the full six visits could not be completed during the time period available for survey.

Ponds which were surveyed and were found to contain no amphibians are shown on map series EC-04, but are not referenced explicitly in this report.

## Desk study

- 2.4.8 Records for great crested newt (GCN) (*Triturus cristatus*) identified a medium population of GCN located within and to the north of SITA Packington Landfill (SP 20620 85775), to the east of the land required for the construction of the Proposed Scheme. Within the network of eight ponds, four were found to contain adult GCN; two within 200m, and two within 400m of the Proposed Scheme. A peak count of 86 adult GCN was noted on 24 May 2012. Ponds in this area were subject to no further survey as it is considered that the survey methodologies used by Argus Ecology were consistent with survey guidelines, and that the data is sufficiently up to date to still be considered valid.
- 2.4.9 All ponds identified by the desk study in areas with GCN records were confirmed and assessed during field surveys.
- 2.4.10 In relation to all amphibians, the desk study data did not identify any good or exceptional populations of amphibians within the land required for the construction of the Proposed Scheme, or within 500m of the land required for construction of the Proposed Scheme.

## Discussion of combined results

### *Balsall Common and Hampton-in-Arden area (CFA23)*

- 2.4.11 Nine ponds were identified for survey directly within the land required for the construction of the Proposed Scheme in the Balsall Common and Hampton-in-Arden area (CFA23), with a further 51 ponds located within 250m and with no obvious barriers to amphibian movement. All ponds on land where access was granted were subject to survey.
- 2.4.12 Four ponds in two separate locations were confirmed to support GCN; two at the land west of Pasture Farm (040-AA1-155004 and 040-AA1-155009) and two at Lavender Hall Lane/Park Lane (040-AA1-150007 and 040-AA1-150009).
- 2.4.13 The survey on 08 May 2013 recorded a peak count of 19 GCN adult individuals between the two ponds (040-AA1-150007/150009) north-west of Lavender Hall Farm (Volume 5: Map ECo4-051-G8), and the ponds were also found to support good populations of smooth newt (*Lissotriton vulgaris*), and low numbers of common frog (*Rana temporaria*) and common toad (*Bufo bufo*). The ponds are immediately adjacent to the land required for the construction of the Proposed Scheme.
- 2.4.14 Although the vegetated field margins surrounding the ponds were likely to represent valuable foraging habitat and refuge outside of the breeding season, the most valuable habitat was considered to be situated to the west of the ponds and comprised an undisturbed and vegetated railway corridor, with grassy, shaded embankments and regular refuges in the form of dead wood. Given the relative quality of this habitat, it is likely that newts would select the railway corridor for foraging and resting habitat outside of the breeding season in favour of the heavily managed and disturbed agricultural land.
- 2.4.15 An incidental sighting of a single adult female GCN was recorded during 2012 reptile surveys in terrestrial habitat between the ponds on the land south of Pasture Farm,



and land west of Pasture Farm indicating the presence of the species in the local area. Amphibian surveys, carried out at two separate, nearby locations (040-AA1-155004/155009) on 28 and 30 May 2013 recorded a peak count of five adult GCN across the two ponds, with low populations (peak count less than 10) of smooth newt, common frog and common toad also recorded (Volume 5: Map EC-04-053).

- 2.4.16 The terrestrial habitat to the east of these ponds comprised ploughed agricultural fields, and represented sub-optimal habitat for GCN, especially in comparison to the land to the west of the pond, which comprised an open quarry containing a large pond, rough grassland, scrub and vegetated field margins.
- 2.4.17 The water bodies at Lavender Hall Fisheries (Volume 5: Map EC-04-051-H7 and EC-04-052-51-17) were heavily stocked with fish, making them unsuitable for GCN. No GCN were recorded within these waterbodies. The ponds supported small populations of smooth newt, common frog and common toad, but it was not considered to be an important assemblage of amphibians.
- 2.4.18 The ponds at Baulk Lane (Map EC-04-051-I5, EC-04-51-I6 and EC 04-051-I7, Volume 5, Map Book Ecology), on the land south-west of Lower Farm (Map EC-04-051-H4, EC-04-51-H5, EC-04-51-H6 and EC-04-51-H7, Volume 5, Map Book Ecology), and Lavender Hall Lane (Map EC-04-051-G4 and EC-04-51-G5, Volume 5, Map Book Ecology), supported good populations of smooth newt, and low populations of common frog and common toad. Four ponds fell within the land required for the construction of the Proposed Scheme with a further four ponds immediately adjacent.
- 2.4.19 At the southern end of the Balsall Common and Hampton-in-Arden area (CFA23), the pond within the land required for the construction of the Proposed Scheme at Beechwood Farm (Map EC-04-050b-D6, Volume 5, Map Book Ecology) was found in 2012 and 2013 to support low numbers of breeding common toad and low numbers of common frog, and was found in 2012 to support breeding smooth newts. One pond in the Land south of Moat Farm and west of Beechwood Farm (Map EC-04-050b-C6, Volume 5, Map Book Ecology) supported a good population of common toad. A network of 11 ponds within the land south of Berkswell Station (Map EC-04-050b-B8, EC-04-050b-C8 and EC-04-050b-D8, Volume 5, Map Book Ecology) supported low populations of common frog, common toad and smooth newt within areas of agricultural land. It is likely that the disused railway line represents valuable terrestrial habitat to amphibians in the area, and possibly a dispersal corridor.

#### *Survey constraints in the Balsall Common and Hampton-in-Arden area (CFA23)*

- 2.4.20 Due to land access restrictions, eight ponds could not be surveyed but the habitat types around them means, it is likely that they could be used by amphibians including GCN. Only one of the ponds (Map EC-04-051-C6, Volume 5, Map Book Ecology) lay within the land potentially required for construction.
- 2.4.21 Two ponds (Map EC-04-051-C6 and EC-04-051-C7, Volume 5, Map Book Ecology) adjacent to Sixteen Acre Wood are surrounded by suitable habitat for GCN but are located 1.3km from the nearest known GCN meta population at Park Lane/Lavender Hall Lane (040-AA1-150009 and 040-AA1-150007).

- 2.4.22 The pond north-east of A452 Chester Road (Map EC-04-052-G4, Volume 5, Map Book Ecology) forms part of a network of ponds some of which are located in a quarry, and surrounded by optimal GCN habitat. There are no known populations of GCN nearby.
- 2.4.23 The two ponds at Marsh Lane Nature Reserve (Map EC-04-052-G8 and EC-04-052-H8, Volume 5, Map Book Ecology) are within 20m of two other ponds surveyed on the same site in 2013 where no GCN were identified. Given the presence of signal crayfish in adjacent ponds and the heavy waterfowl presence on the un-surveyed ponds, it is considered unlikely that GCN are present. The ponds at Marsh Lane Nature Reserve support good population of common toad, with low numbers of smooth newt and common frog also recorded.
- 2.4.24 The three ponds to the south of Marsh Lane Nature Reserve (Map EC-04-052-H7 and EC-04-052-H7, Volume 5, Map Book Ecology) are located next to limited areas of suitable amphibian habitat, with the A452 to the east acting as a likely barrier to amphibian movement. These ponds appear to be used for fishing.
- 2.4.25 Restrictions in surveying these ponds could have resulted in GCN remaining unrecorded and therefore cannot be ruled out, particularly at ponds within Map EC-04-051-C6, EC-04-051-C7, EC-04-52-G4 & EC-04-52-H3 (Volume 5, Map Book Ecology).

*Birmingham Interchange and Chelmsley Wood area (CFA24)*

- 2.4.26 Twenty-four ponds were identified for survey within the land required for the construction of the Proposed Scheme within the Birmingham Interchange and Chelmsley Wood area (CFA24), with a further 17 ponds located within 250m, with no obvious barriers to amphibian movement. All ponds on land where access was granted were subject to survey.
- 2.4.27 None of the ponds confirmed as supporting GCN were within the Proposed Scheme, although four ponds were within 250m, including the northern most pond within Coleshill & Bannerly Pools SSSI west of A446 Stonebridge Road (040-AA1-159001), which recorded an adult peak count of two GCN as well as a good population of smooth newt, and low populations of common frog and common toad.
- 2.4.28 Coleshill & Bannerly Pools SSSI west of A446 Stonebridge Road contained two large ponds (040-AA1-159001 and Map EC-04-054a-H5, Volume 5, Map Book Ecology) which were severed from other suitable amphibian habitat by the M6, the M42, and the A446. The habitat surrounding the ponds comprised grassland to the south (Map EC-04-054a-H5, Volume 5, Map Book Ecology), with silver birch (*Betula pendula*), oak (*Quercus sp.*) and pine (*Pinus sp.*) woodland with ground flora of thick bracken surrounding the other margins. Lying dead wood was present throughout the site, offering numerous potential hibernacula or refuges.
- 2.4.29 The northerly pond (040-AA1-159001) consisted of an open water body with heavily shaded and mostly inaccessible margins, while the southern pond (Map EC-04-054a-H5, Volume 5, Map Book Ecology) consisted of bog habitat with pools spread throughout. The southern pond was considered to be unsafe to access due to the nature of the conditions underfoot, but did appear suitable for GCN and other

amphibians, though the northern pond is likely to offer more suitable breeding habitat. Given the difficulty in surveying the southern pond, it is considered likely that GCN were also present.

- 2.4.30 Land west of Denbigh Spinney Local Wildlife Site (LWS) contained a network of ponds of varying number depending on site conditions (Map EC-04-053-E6 & EC-04-053-E7, Volume 5, Map Book Ecology). During the first amphibian survey, nine ponds were identified, mapped and surveyed, although as surveys progressed the boundaries of the ponds were subsequently altered and an additional pond was added as a result of the realignment of the motorcycle track through the area. All ponds which were present during each survey were subject to amphibian survey. A small population of common frog were recorded on site along with a good breeding population of smooth newt within the network of ponds, with a peak count of 86 adults on 22 April 2013.
- 2.4.31 The land west of Denbigh Spinney LWS was surrounded by rough grassland, scrub, and a network of ditches to the north, the west and to the south-west, and by Denbigh Spinney LWS to the east. It was likely that this terrestrial habitat was used by smooth newt outside of the breeding season, and given the transitory nature of the site and the high levels of disturbance experienced during the critical period of the breeding season, it was considered likely that the area would support exceptional numbers of smooth newt without such regular disturbance.
- 2.4.32 Four ponds (040-AA1-158002, 040-AA1-158004, 040-AA1-158005 and 040-AA1\_158009) were identified within the land east of the A452 Chester Road and north of Packington Lane (in an area subject to landfill) which were surveyed in 2012 by Argus Ecology and therefore not subject to survey in 2013. In addition to these, four further ponds were identified as requiring survey. Two of these ponds, were identified from aerial and Ordnance Survey (OS) mapping, but upon inspection found to be waste storage ponds. The ponds were full of slurry and compost and deemed unsuitable for amphibians so the pond was not subject to further survey. The two remaining ponds, (Map EC-04-053-D5 and EC-04-053-E4, Volume 5, Map Book Ecology) were subject to survey in 2013. Despite the proximity of these water bodies to a GCN breeding population a short distance to the north, only a small population of smooth newt (peak adult count of four) and a low population of common toad (peak adult count of 54) was recorded during the survey. Both ponds were noted to contain large numbers of tadpoles. It is unlikely that these ponds were used by GCN present in the north of the site, as the active landfill would prevent movement between the two sets of ponds.
- 2.4.33 A network of five ponds was identified to the west of the Coleshill & Bannerly Pools SSSI, spread throughout managed agricultural fields (Map EC-04-054a-F7 and EC-04-054a-G7, Volume 5, Map Book Ecology). The most southern pond was situated on the northern margin of Coleshill Pool Wood LWS (Map EC-04-054a-H7, Volume 5, Map Book Ecology). On 17 April 2013, 788 adult common toad were counted on site, with more than 600 adults counted in one pond alone. Common toad were also recorded crossing the fields and moving in a northerly direction, suggesting that they had originated from the south of the site, most likely the woodland of Coleshill Pool Wood LWS which represented high quality terrestrial habitat for amphibians. A low population of smooth newts was also recorded within this network of ponds.

### *Castle Bromwich and Bromford area (CFA25)*

- 2.4.34 Seventeen ponds were identified for survey within the land required for the construction of the Proposed Scheme in the Castle Bromwich and Bromford area (CFA25), with a further 12 ponds located within 250m of the land required for the construction of the Proposed Scheme, with no obvious barriers to amphibian movement. All ponds on land where access was granted were subject to survey.
- 2.4.35 Park Hall Site of Importance for Nature Conservation (SINC) contained a network of seventeen ponds within the land required for the construction of the Proposed Scheme and supported a small population of GCN. Their presence was confirmed in four of the ponds (040-AA1-165001, 040-AA1-165004, 040-AA1-165005 and 040-AA1-166001), by field surveys undertaken in 2012. The network of ponds also supported good populations of smooth newt, and low populations common frog and common toad. The populations were generally confined to the eastern end of the site, but the addition of new ponds to the west of the site by the Birmingham and Black Country Wildlife Trust is likely to have increased the carrying capacity of the reserve for amphibians and aquatic invertebrates. Surveys in 2013 did not identify the presence of GCN in the western end of the site, though low numbers of common frog, common toad and smooth newt were found, indicating rapid colonisation and demonstrating the expansion of amphibian populations within the site.
- 2.4.36 The land north of Park Hall SINC contained nine water bodies, one of which was situated within the land required for the construction of the Proposed Scheme. The site comprised a network of disused sewage treatment reservoirs which were filled with water and which were anecdotally recorded as completely drying out throughout the year. Small numbers of common frog, common toad and smooth newt were identified on site. Heavily managed grasslands and eutrophic ponds formed the majority of the site, with some dense scrub and marginal vegetation around the ponds. The River Tame SLINC was likely to act as a physical barrier to amphibian movements between Park Hall SINC and this site. The industrial estate to the north-east is likely to act as a barrier to migration. The poor quality of aquatic habitat, abundance of wildfowl and physical barriers to movement are likely to explain the relatively small populations of amphibians on site.

### *Washwood Heath to Curzon Street area (CFA26)*

- 2.4.37 One pond (040-AA1-173001) was identified for survey within the land required for the construction of the Proposed Scheme, with no further ponds located within 250m which had no obvious barriers to amphibian movement.
- 2.4.38 The pond was surveyed four times following an amended methodology, owing to the pond margin being inaccessible because of the steep banks. Only refuge searches and extended torch surveys were carried out for the pond from the top of the bank. No amphibians were recorded. The pond was suitable for supporting amphibians, but appeared to have been newly constructed may be colonised by amphibians in the future.
- 2.4.39 A single smooth newt was identified within the land required for the construction of the Proposed Scheme under a reptile survey refuge on 24 June 2013 (SP 09799 89083).

The refuge was located in terrestrial habitat suitable for supporting amphibians, although there were no ponds located within 500m of the record which were considered to be connected to this area, as the Grand Union Canal SLINC and network of roads and urbanised areas were considered to be barriers to newt movement between this area and local ponds.

2.4.40 The Washwood Heath to Curzon Street area (CFA26) was not considered to contain sufficient habitat suitable for supporting viable populations of GCN or other amphibians.

2.4.41 Table 5 summarises the likely meta-populations that have been identified within the vicinity of the land required for the construction of the Proposed Scheme and the respective associated population size classes of GCN.

Table 5: Summary of GCN meta-populations assumed to occur within CFA23, CFA24, CFA25 and CFA26 inclusive

CFA	Meta-population reference	Location	Ecology survey code of ponds within assumed meta-population	Estimated population size class of meta-population	Distance from land required for the construction of the Proposed Scheme <sup>7</sup> (m) and orientation
23	CFA23 - AMP 1	Park Lane/ Lavender Hall Lane	040-AA1-150007; 040-AA1-150009	Medium	20m south-west
23	CFA23 – AMP 2	Land west of Pasture Farm	040-AA1-155004; 040-AA1-155009	Small	180m south-west
24	CFA24 – AMP 1	Coleshill & Bannerly Pools SSSI	040-AA1-159001; EC-04-054a-H5	Small	100m east
25	CFA25 – AMP 1	Park Hall SINC	040-AA1-165001; 040-AA1-165004; 040-AA1-165005; 040-AA1-166001.	Small	Within land required

<sup>7</sup> The phrase 'Within land required' represents an abbreviation of this term

## 3 Reptiles

### 3.1 Introduction

- 3.1.1 This section of the appendix presents details of baseline information relating to reptiles for the section of the Proposed Scheme that will pass through CFA23, CFA24, CFA25 and CFA26.

### 3.2 Methodology

- 3.2.1 Details of the standard methodology used for reptile surveys are provided in the Ecology Technical Note: Field Survey Methods and Standards (Volume 5: Appendix CT-001-000/2).
- 3.2.2 Desk data has been obtained from the following sources in relation to provision of reptile records within 5km of the land required for the construction of the Proposed Scheme:
- EcoRecord<sup>8</sup>;
  - Warwickshire Biological Records Centre;
  - Clemons, J. (1998), A Provisional Atlas of the Amphibians and Reptiles of Warwickshire (Amphibia:9400; Reptilia:9500) Warwickshire County Council / Coventry City Council;
  - The Wildlife Trust for Birmingham and the Black Country (2005), A Provisional Atlas of Reptiles and Amphibians of Birmingham and the Black Country. The Wildlife Trust for Birmingham and the Black Country; and
- 3.2.3 In addition, other sources of data were used to obtain detail about local reptile surveys undertaken within the last 10 years, including ecology chapters of Environmental Statements. The following were reviewed:
- Greenfield Associates (2011), Environmental Statement: Park Farm, Middle Bickenhill, Nr Solihull, Birmingham;
  - Middlemarch Environmental Ltd (2011), Park Farm, Middle Bickenhill, Near Solihull, Birmingham. Reptile Survey;
  - Meriden Quarry Extension, Environmental Statement 2006: Summary pages (11 and 12). Note: Further detail within ecology chapter (Appendix 5) – not received or reviewed;
  - Argus Ecology (2011), Packington CHP Facility, Little Packington Landfill Site, Warwickshire. Extended Phase 1 Habitat Survey;

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<sup>8</sup> EcoRecord; The Ecological Database for Birmingham and the Black Country (Dudley, Sandwell, Walsall & Wolverhampton); <http://www.ecorecord.org.uk/?q=home>; contacted April 2012

- Cheshire Ecological services Ltd (2006), Hams Hall, Water Orton, Warwickshire – Reptile Survey for RSK ENSR;
- Halcrow (2005), Supporting Information for the Online Planning Application at the Former Alstom Site, Washwood Heath, Birmingham;
- Atkins (2013), M6 toll – M42 data: Series of survey data for adjacent Coleshill area, with maps, target notes and reptile habitat assessment profomas; and
- Atkins (2013), HS2 Reptile Boundary Mapping showing reptile results for Coleshill Junction and Stoneleigh, Kenilworth and Burton Green.

### 3.3 Deviations, constraints and limitations

3.3.1 At all sites where the risk of theft and/or potential disturbance of refugia was considered to be high, only roofing felt was used rather than a 50:50 split of metal and roofing felt.

3.3.2 Further deviations to the standard methodology were as follows:

- an extension to the survey period to include October 2012 during suitable environmental conditions, and ahead of the onset of hibernation. This deviation enabled surveys to be carried out in suitable weather conditions in October 2012 although, where surveys yielded negative records, these additional visits were deemed void and sites were re-surveyed in 2013; and
- additional survey effort was expended for sites where disturbance to refugia during the survey period occurred to the extent that they were no longer serving a functional purpose, for example, in CFA 23 at Beechwood Farm (Map EC-07-050b-D6, Volume 5, Map Book Ecology) 11 survey visits were undertaken to compensate for damage by farming activity and in CFA 25 at Park Hall SINC (Map EC-07-067; 040-RE2-165002, Volume 5, Map Book Ecology) and the small triangle of land in CFA25 between M6 and River Tame SLINC at Park Hall SINC (Map EC-07-067-D7, Volume 5, Map Book Ecology) 22 survey visits were undertaken to compensate for damage by cattle and loss of mats though flooding during the survey period . Other sites where survey effort was increased to compensate for disturbance include land forming easternmost roadside verge of A446 Stonebrige Road south-bound (Map EC-07-054a; 040-RE2-158003, Volume 5, Map Book Ecology), Marsh Lane Nature Reserve- Land west of A452 Kenilworth Road (Map EC-07-052-G7, Volume 5, Map Book Ecology) , land east of Diddington Lane (Map EC-07-052-C7, Volume 5, Map Book Ecology),land north of Labernum Farm and Waste Lane (Map EC-07-050b-D7, Volume 5, Map Book Ecology), Park Farm (Map EC-07-053, Volume 5, Map Book Ecology; 040-RE2-155004), Land on the south side of the A45 Coventry Road / North-west of Diddington Farm (Map EC-07-052-A6, Volume 5, Map Book Ecology), land north, east and south of Patrick Farm (Map EC-07-052-F6, Volume 5, Map Book Ecology), Diddington Farm (Map EC-07-052-B5, Volume 5, Map Book Ecology) and the land north of Park Hall SINC (Map EC-07-067, Volume 5, Map Book Ecology; 040-RE2-165001).

- There were two instances where the first and last survey visits of a site did not take place a minimum of 30 days apart (Volume 5: Appendix CT-001-000/2).
- This was the case at Lavender Hall Fisheries (Map EC-07-051-I7, Volume 5, Map Book Ecology) and Land north of Lavender Hall Fisheries (Map EC-07-051-H7, Volume 5, Map Book Ecology) where there were 28 days between the first and last survey visits. This is not thought to represent a significant deviation from the methodology, given the nature of the habitats surveyed. It is considered that no additional information would have been missed.

### Survey limitations and assumptions

- 3.3.3 Scoping of suitable reptile sites involved site visits only where access was available. Where access was not permitted scoping relied upon aerial mapping evidence and/or assessment of habitat suitability by inspection from Public Rights of Way (PRoW).
- 3.3.4 The weather during the survey period for both 2012 and 2013 was mixed. At the start of 2012 until May the weather was unfavourable for the detection of reptiles after which it became mixed. From June to August 2012 the weather was largely unsuitable and uncharacteristically wet, leading to a paucity of suitable survey days. Suitable weather occurred from September until the second week of October 2012. The weather during 2013 was unseasonably cold until the last week of March, after which it gradually improved through April before becoming optimal in late May and June. Survey results were only collected in suitable weather conditions. The unpredictable weather patterns in both 2012 and 2013, coupled with lack of access at a number of sites until a significant way through the survey period meant that surveys could not be completed at some sites (surveys started but not completed), within the timescale of the data collection for a complete set of baseline data. These are described in this report as partially complete and reptiles are assumed as present.
- 3.3.5 Despite the presence of suitable reptile habitat, reptile surveys were not able to be undertaken at several sites due to lack of access. These sites are presented in Table 6 and on Map Series EC-07 (Volume 5, Map Book Ecology).

Table 6: Summary of locations where requirement for reptile survey identified but no access available for survey

Survey site name	Location	OS grid reference	Description of proposed survey location	CFA	Distance from land required for the construction of the Proposed Scheme <sup>9</sup> (m) and orientation
Kenilworth Greenway (EC-07-50b-C6)	Land- north west of Beechwood Farm and south of Moat Farm	SP 25257 76528	Linear corridor, with scrub and tall ruderal habitats with potential basking, foraging and refuge for reptiles. Difficult to survey as only very small areas of potential basking habitats, some of which are on steep banks. Adjacent habitats surveyed	23	Within the land required

<sup>9</sup> The phrase 'Within land required' represents an abbreviation of this term



Survey site name	Location	OS grid reference	Description of proposed survey location	CFA	Distance from land required for the construction of the Proposed Scheme <sup>9</sup> (m) and orientation
			extensively.		
Land south of Lavender Hall Fisheries and west of Berkswell Station (EC-07-051-I8)	Land west of Hallmeadow Road	SP 24368 77611	Areas of dense bramble scrub and open damp grassland habitats adjacent to rail corridor. Suitable basking, foraging and refuge opportunities for reptile species.	23	100m west
Top Lodge (EC-07-051-E7)	Land at Top Lodge	SP 23250 78680	Site contains mature garden habitat with potential basking, foraging and refuge opportunities.	23	Within the land required
Wood north of Berkswell Marsh SSSI (EC-07-051-B5)	North of Berkswell Marsh SSSI	SP 22704 80020	Area of exceptional suitability for reptiles. Woodland, wet woodland, marsh, swamp, neutral grassland habitats present which could support basking, foraging and hibernation activities. Common lizard recorded in adjacent linked habitat.	23	80m north-east
A452 Kenilworth Road road verges between Park Lane and Coventry / Birmingham Road A45 (EC-07-051-B7)	Between Park Lane and Coventry / Birmingham Road A45	SP 22022 80468	Access granted too late to commence surveys. Area of good suitability for reptiles, neutral grassland habitats with regular to irregular management, linking to watercourses, marsh, wetland, woodland, grassland and hedgerow habitats. This site offered potential basking and foraging habitat.	23	Within land required
Berkswell Marsh Meadow LWS (EC-07-051-A5)	Land north-west of Sixteen Acre Wood	SP 225 800	Area of exceptional suitability for reptiles. Woodland, wet woodland, marsh, swamp, neutral grassland habitats present which could support basking, foraging and hibernation activities. Common lizard recorded in adjacent linked habitat.	23	Within land required
Land east of A452 Kenilworth Road and Marsh Farm (EC-07-052-I6)	East of A452 Kenilworth Road and Marsh Farm	SP 22662 79406	Area of good suitability for reptiles. Comprising farmland habitats, rough grassland beneath plantation, compost heaps and neutral grassland which link to the continuation of the Berkswell Estate and areas of exceptional suitability. Common lizard recorded in adjacent linked habitat.	23	10m south-west
Land south of Hornbrook Farm (EC-07-052-G5)	South of Hornbrook Farm and west of Mercote Mill Farm	SP 22308 80956	Area of wet and dry grassland, hedgerow, tall ruderal, scrub and stream habitats, suitable for basking and foraging.	23	10m east
Grassland habitats under pylons and adjacent to M6 north-bound verges	Under pylons and adjacent to M6 north-bound verges	SP 19605 82941	Area not accessed nor viewed from adjacent areas. Aerial view and Phase 1 Habitat Survey data suggest this site supports good reptile habitat.	24	Within land required

Survey site name	Location	OS grid reference	Description of proposed survey location	CFA	Distance from land required for the construction of the Proposed Scheme <sup>9</sup> (m) and orientation
(EC-07-053-L1-G2)					
Grassland habitat adjacent to A45 Coventry / Birmingham Road at Stone Bridge (EC-07-053-H5)	Adjacent to A45 Coventry / Birmingham Road at Stone Bridge	SP 21209 83206	Area not accessed nor viewed from adjacent areas. Aerial view and Phase 1 Habitat Survey data suggest this site supports good reptile habitat. Access may not be critical as adjacent connected sites have been surveyed with no reptile presence detected.	24	10m north-east
Denbigh Spinney LWS (EC-07-053-E6)	Land west of A452 Chester Road	SP 20345 84282	The area is contains woodland scrub and limited grassland. A motorcycle track is within the area and is constructed from wood chips and earth banks suitable for basking. The woodland spinney has the potential to contain deadwood piles which could be utilised for hibernation.	24	Within the land required
Coleshill & Bannerly Pools SSSI east of A446 Stonebridge Road (EC-07-054a-G3)	East of A446 Stonebridge Road	SP 20381 86403	Access granted too late to commence surveys. Area of exceptional suitability for reptiles. Woodland, wet woodland, marsh habitats present which could support basking, foraging and hibernation activities. Slow-worm recorded in adjacent linked habitat.	24	150m east
M6 junction 4 and M6 north-bound and south-bound verges (EC-07-054a-F4)	M6 junction 4 and M6 north-bound and south-bound verges	SP 19940 86531	Access granted too late to commence surveys. Area of likely good suitability for reptiles. Area not accessed and only partially viewed from adjacent areas, aerial views suggest suitable habitats present to support reptile species and some areas (M6 north-bound verge) linked to A446 Stonebridge Road verge which supports a low population of slow-worm.	24	Within land required
B4114 Coleshill Road road verges (EC-07-054a-A4)	Verges between Water Orton and Castle Bromwich area	SP 16551 91178	Area not accessed nor viewed from adjacent areas. Aerial view and Phase 1 Habitat Survey data suggest this site supports good reptile basking habitat. No surveys undertaken at this site, though this may not be critical due to adjacent areas having been extensively surveyed and only a low population of grass snake recorded.	25	80m north
B4118 Water Orton Road verges (EC-07-066b-B5)	Road verges of B4118 Water Orton Road	SP 16528 90846	The road verges at this site contain dry grassland habitat and tall ruderal vegetation suitable for reptiles basking and foraging.	25	Within land required
Land south of M6 and north of Berrandale Road	West of M6 junction 5	SP 13828 90125	Mix of rough grassland, scrub, semi-mature native and ornamental woodland. With defunct urban structures and debris.	25	40m south

Survey site name	Location	OS grid reference	Description of proposed survey location	CFA	Distance from land required for the construction of the Proposed Scheme <sup>9</sup> (m) and orientation
(EC-07-067-B7)			Suitable basking, foraging and refuge opportunities for reptile species.		
Land at Warren Road Site of Local Importance for Nature Conservation (SLINC) (EC-07-069-G7)	Warren Road SLINC	SP 10362 89050	Access permitted for one visit to scope the site's habitat suitability for reptiles and then further access refused. Reptile surveys believed to have been conducted at this site as part of on-going re-development, but specific report was not received for review prior to 17 September 2013. This site supports good habitat for reptile species, comprising suitable areas of rough acid, neutral and potentially calcareous grassland, scrub and tall ruderal habitats on a brownfield site with varied topography. Provides suitable habitat for basking, foraging and refuge activities. Connected to adjacent rail corridor with brownfield habitats.	26	Within land required
Land south and north of the River Tame SLINC and south of the M6 (EC-07-06-l7)	Between the M6 and the Birmingham to Derby rail line	SP 10688 89615	Potentially suitable habitats for reptile foraging and basking.	26	50m north
Land at Warren Road SLINC (EC-07-069-G7)	Warren Road SLINC	SP 10363 89264	Access permitted for one visit to conduct Phase 1 Habitat Survey and scope the site's habitat suitability for reptiles and then further access refused. This site supports good habitat for reptile species, comprising areas of rough grassland habitat and connected to adjacent rail corridor with brownfield habitats. Adjacent sites (040_RE-173001, 040_RE-173002, 040_RE-172001) have been surveyed, so as this has small areas for suitable reptile habitat it is not thought to represent a critical site for survey.	26	Within land required

### 3.4 Baseline

- 3.4.1 Details of the locations where reptile surveys were conducted and associated survey results are provided in Table 7 and Map Series EC-07 (Volume 5, Map Book Ecology). Sites which underwent a walkover only survey and were then scoped out due to their habitat being unlikely to support reptiles are also listed.

Table 7: Summary of reptile survey work undertaken in CFA23, CFA24, CFA25 and CFA26

Map code and/or Ecology survey code	Survey location	OS Grid Reference	Survey method	Survey start date	Survey end date	No. survey visits completed	Survey result <sup>10</sup> (population size class <sup>11</sup> )	CFA	Distance from land required for the construction of the Proposed Scheme <sup>12</sup> (m) and orientation
EC-07-050b-D6	Beechwood Farm	SP 251 775	Refugia survey	14 August 2012	05 September 2012	8	Reptiles likely absent	23	Within land required
EC-07-050b-D7	Land north of Labernum Farm and Waste Lane	SP 250 773	Refugia survey	20 August 2012	11 June 2013	15	Reptiles likely absent	23	Within land required
EC-07-050b-C6	Active rail corridor viewed from Beechwood Farm rail bridge	SP 260 774	Visual survey using binoculars	08 April 2013	14 June 2013	8	Reptiles likely absent	23	Within land required
EC-07-050b-C6	Land north-west of Beechwood Farm and south of Moat Farm	SP 252 775	Walkover only	16 January 2013	N/A	1	Scoped out	23	Within land required
040-RE2-148001 (EC-07-050b-B7)	Land south-east of Berkswell Station (adjacent to Marshy Grassland)	SP 245 776	Refugia survey	02 May 2013	07 June 2013 Partially complete	5	Reptiles assumed present as surveys not completed	23	Within land required
EC-07-050b-B7	Land to the south-east of Berkswell Station (only marshy grassland triangle)	SP 245 774	Refugia survey	08 April 2013	14 June 2013	8	Reptiles likely absent	23	Within land required
EC-07-051-	Lavender Hall Fisheries	SP 244 778	Refugia survey	13 August	11 September	7	Reptiles likely	23	20m south-west

<sup>10</sup> Peak adult count of each species is listed<sup>11</sup> Classification criteria in line guidance from: Herpetofauna Groups of Britain and Ireland (1998) Evaluating local mitigation/translocation programmes: Maintaining Best Practice and Lawful Standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth, unPubl.<sup>12</sup> The phrase 'Within land required' represents an abbreviation of this term

Map code and/or Ecology survey code	Survey location	OS Grid Reference	Survey method	Survey start date	Survey end date	No. survey visits completed	Survey result <sup>10</sup> (population size class <sup>11</sup> )	CFA	Distance from land required for the construction of the Proposed Scheme <sup>12</sup> (m) and orientation
I7				2012	2012		absent		
EC-07-051-H7	Land north of Lavender Hall Fisheries	SP 246 778	Refugia survey	04 September 2012	02 October 2012	7	Reptiles likely absent	23	Within land required
EC-07-051-H7	Lavender Hall Farm	SP 241 780	Refugia survey	04 September 2012	14 June 2013	16	Reptiles likely absent	23	Within land required
EC-07-051-F7	Land on the north-west side of Lavender Hall Lane	SP 240 785	Refugia survey	17 April 2013	10 June 2013	8	Reptiles likely absent	23	Within land required
EC-07-051-F7	Wood on the junction between Park Lane and the A452 Kenilworth Road	SP 233 790	Refugia survey	08 April 2013	11 June 2013	10	Reptiles likely absent	23	Within land required
EC-07-051-E6	Marlowes and land south-west of Marlowes	SP 233 790	Refugia survey	08 April 2013	11 June 2013	10	Reptiles likely absent	23	Within land required
040-RE2-151001 (EC-07-051-C6)	Sixteen Acre Wood	SP 227 797	Refugia survey	08 April 2013	11 June 2013	10	1 common lizard (low)	23	Within land required
EC-07-052-G7	Marsh Lane Nature Reserve - Land west of A452 Kenilworth Road	SP 217 805	Refugia survey	12 September 2012	14 June 2013	14	Reptiles likely absent	23	Within land required
EC-07-052-F6	Land north, east and south of Patrick Farm	SP 218 814	Refugia survey	02 October 2012	24 June 2013	11	Reptiles likely absent	23	Within land required
EC-07-052-D3	Land north of Meriden Mill Farm	SP 221 821	Walkover only	15 April 2013	N/A	1	Scoped out	24	500m west

Map code and/or Ecology survey code	Survey location	OS Grid Reference	Survey method	Survey start date	Survey end date	No. survey visits completed	Survey result <sup>10</sup> (population size class <sup>11</sup> )	CFA	Distance from land required for the construction of the Proposed Scheme <sup>12</sup> (m) and orientation
EC-07-052-D5	Land south of Mouldings Green Farm	SP 218 818	Refugia survey	15 April 2013	10 June 2013	9	Reptiles likely absent	23	Within land required
EC-07-052-D8	Land to the north of B4102 Meriden Road	SP 212 815	Refugia survey	09 April 2013	11 June 2013	9	Reptiles likely absent	23	Within land required
EC-07-052-C7	Land east of Diddington Lane	SP 212 823	Refugia survey	01 August 2012	28 September 2012	7	Reptiles likely absent	23	Within land required
EC-07-052-B5 and EC-07-052-A6	Diddington Farm	SP 214 827	Refugia survey	17 October 2012	11 June 2013	10	Reptiles likely absent	23	Within land required
EC-07-052-A8	Land on the south side of the A45 Coventry Road / North-west of Diddington Farm	SP 206 828	Refugia survey	22 August 2012	22 September 2012	7	Reptiles likely absent	23	Within land required
040-RE2-155002 (EC-07-053-l4)	Balancing pond south of A45 Birmingham Road	SP 215 831	Refugia survey	03 May 2013	10 June 2013 Partially complete	6	Reptiles assumed present as surveys not completed	24	Within land required
EC-07-053-H6	A45 Coventry Road verges	SP 208 832	Refugia survey	03 May 2013	13 June 2013	8	Reptiles likely absent	24	Within land required
EC-07-053-H7	Land north of A45 Coventry Road, Bickenhill	SP 203 831	Refugia survey	12 September 2012	10 June 2013	13	Reptiles likely absent	24	Within land required
040-RE2-155003 (EC-07-053-l4)	A452 Chester Road verges.	SP 209 838	Refugia survey	03 May 2013	13 June 2013	7	Reptiles likely absent	24	Within land required

Map code and/or Ecology survey code	Survey location	OS Grid Reference	Survey method	Survey start date	Survey end date	No. survey visits completed	Survey result <sup>10</sup> (population size class <sup>11</sup> )	CFA	Distance from land required for the construction of the Proposed Scheme <sup>12</sup> (m) and orientation
G5)									
EC-07-053-G9	Land west of Denbigh Spinney Local Wildlife Site (LWS)	SP 201 838	Walkover only	22 April 2013	N/A	1	Scoped out	24	Within land required
EC-07-053-F6	Land south of Park Farm	SP 205 838	Refugia survey	12 September 2012	13 June 2013	13	Reptiles likely absent	24	Within land required
040-RE2-155004 (EC-07-053-E4)	Park Farm	SP 208 836	Refugia survey	12 September 2012	13 June 2013	15	1 male grass snake (low)	24	Within land required
040-RE2-156003 (EC-07-053-E8)	M42 south-bound verges	SP 198 84	Refugia survey	03 May 2013	10 June 2013 Partially complete	6	Reptiles assumed present as surveys not completed	24	Within land required
EC-07-053-D5	Land east of A452 Chester Road and A446 Stonebridge Road	SP 205 847	Walkover only	13 May 2013	N/A	1	Scoped out	24	Within land required
040-RE2-157002 (EC-07-053-B7-C7)	Fields on the west side of M42	SP 196 852	Refugia survey	15 May 2013	24 June 2013 Partially complete	6	Reptiles assumed present as surveys not completed	24	Within land required
040-RE2-157003 (EC-07-053-C7)	M42 north-bound verges	SP 198 849	Refugia survey	03 May 2013	10 June 2013 Partially complete	5	Reptiles assumed present as surveys not completed	24	Within land required
EC-07-053-	Land east of A446 Stonebridge	SP 203 855	Walkover only	13 May 2013	N/A	1	Scoped out	24	Adjacent to land required

Map code and/or Ecology survey code	Survey location	OS Grid Reference	Survey method	Survey start date	Survey end date	No. survey visits completed	Survey result <sup>10</sup> (population size class <sup>11</sup> )	CFA	Distance from land required for the construction of the Proposed Scheme <sup>12</sup> (m) and orientation
B4	Road								
040-RE2-158002 (EC-07-053-B6)	M42 A452 Chester Road island	SP 199 830	Refugia survey	03 May 2013	10 June 2013 Partially complete	6	Reptiles assumed present as surveys not completed	24	Within land required
EC-07-053-B6	Land south-west of Quartz Point Business Centre	SP 200 853	Walkover only	15 February 2013	N/A	1	Scoped out	24	Within land required
EC-07-053-B7	Land at NEC	SP 198 842	Refugia survey	12 April 2013	10 June 2013	9	Reptiles likely absent	24	Within land required
040-RE2-157001 (EC-07-053-L1-E3)	Birmingham International Station	SP 187 836	Refugia survey	02 May 2013	07 June 2013 Partially complete	5	Reptiles assumed present as surveys not completed	24	Within land required
040-RE2-158005 (EC-07-054a-H5)	Coleshill & Bannerly Pools SSSI west of A446 Stonebridge Road	SP 199 859	Refugia survey	24 May 2013	13 June 2013 Partially complete	4	Reptiles assumed present as surveys not completed	24	Within land required
040-RE2-158003 (EC-07-054a-G4)	Land forming easternmost roadside verge of A446 Stonebridge Road south-bound	SP 200 864	Refugia survey	10 May 2013	13 June 2013 Partially complete	5	3 slow-worm (low)	24	Within land required
EC-07-054a-G7	Coleshill Pool Wood LWS and hedgerows north of this	SP 194 863	Refugia survey	15 April 2013	10 June 2013	10	Reptiles likely absent	24	Within land required
040-RE2-158006 (EC-07-	Road verge of M6 slip road at Coleshill Pool Wood LWS	SP 197 864	Refugia survey	03 May 2013	10 June 2013 Partially complete	6	Reptiles assumed present as surveys not completed	24	Within land required



Map code and/or Ecology survey code	Survey location	OS Grid Reference	Survey method	Survey start date	Survey end date	No. survey visits completed	Survey result <sup>10</sup> (population size class <sup>11</sup> )	CFA	Distance from land required for the construction of the Proposed Scheme <sup>12</sup> (m) and orientation
054a-G6)									
EC-07-054a-E7	Yorkminster Drive	SP 191 870	Refugia survey	12 July 2012	10 June 2013	8	Reptiles likely absent	24	Within land required
EC-07-067-I6	Land on south side of B4118 Water Orton Road	SP 166 908	Refugia survey	09 April 2013	10 June 2013	10	Reptiles likely absent	25	Within land required
040-RE2-165001 (EC-07-067-H5)	Land north of Park Hall SINC	SP 157 911	Refugia survey	12 April 2013	10 June 2013	9	1 grass snake (low)	25	Within land required
EC-07-067-H6	Land on north side of B4118 Water Orton Road	SP 162 909	Refugia survey	12 April 2013	10 June 2013	9	Reptiles likely absent	25	Within land required
040-RE2-165002 (EC-07-067-G6)	Park Hall SINC	SP 153 907	Refugia survey	25 May 2012	10 June 2013	22	1 grass snake (low)	25	Within land required
040-RE2-165005 (EC-07-067-E6)	Birmingham to Derby rail line corridor, land west of Plants Brook	SP 148 907	Refugia survey	02 May 2013	07 June 2013 Partially complete	4	Reptiles assumed present as surveys not completed	25	Within land required
EC-07-067-D7	Small triangle of land between M6 and River Tame SLINC at Park Hall SINC	SP 147 903	Refugia survey	25 May 2012	10 June 2013	22	Reptiles likely absent	25	Within land required
EC-07-067-B6	Land on the west side of A452 Chester Road	SP 212 832	Refugia survey	12 April 2013	24 June 2013	7	Reptiles likely absent	25	Within land required
EC-07-067-	Land south of Fort Industrial	SP 136 902	Refugia survey	12 April	24 June 2013	8	Reptiles likely	25	Within land required

Map code and/or Ecology survey code	Survey location	OS Grid Reference	Survey method	Survey start date	Survey end date	No. survey visits completed	Survey result <sup>10</sup> (population size class <sup>11</sup> )	CFA	Distance from land required for the construction of the Proposed Scheme <sup>12</sup> (m) and orientation
B7	Park and River Tame SLINC			2013			absent		
EC-07-068a-D6	Land south of M6 and East of Heartlands Parkway	SP 412 290	Walkover only	21 August 2012	N/A	1	Scoped out	25	Adjacent to land required
040-RE2-170001 (EC-07-068a-D6)	Land situated to the south of A47 Fort Parkway	SP 117 898	Refugia survey	14 May 2013	24 June 2013 Partially complete	3	Reptiles assumed present as surveys not completed	25	90m north
EC-07-068a-D7	Land south of the River Tame SLINC and north of Bromford Road	SP 119 290	Walkover only	21 August 2012	N/A	1	Scoped out	26	Within land required
EC-07-068b-B8	Land east of Common Lane and south of Wolseley Drive	SP 110 892	Walkover only	21 August 2012	N/A	1	Scoped out	26	Within land required
EC-07-068b-B7	Land at Wolseley Drive	SP 113 895	Refugia survey	15 April 2013	28 June 2013	7	Reptiles likely absent	26	Within land required
040-RE2-172001 (EC-07-069-G6)	Land at the junction of A47 Heartlands Parkway and Watson Road	SP 098 892	Refugia survey	30 April 2013	24 June 2013 Partially complete	4	Reptiles assumed present as surveys not completed	26	Within land required
EC-07-069-F5	Land between A47 Heartlands Parkway and Watson Road east	SP 098 891	Refugia survey	15 April 2013	24 June 2013	8	Reptiles likely absent	26	Within land required
040-RE2-173001 (EC-07-069-F5)	Land at Nechells Gas Holders	SP 097 890	Refugia survey	09 May 2013	30 May 2013 Partially complete	2	Reptiles assumed present as surveys not completed	26	Within land required

Map code and/or Ecology survey code	Survey location	OS Grid Reference	Survey method	Survey start date	Survey end date	No. survey visits completed	Survey result <sup>10</sup> (population size class <sup>11</sup> )	CFA	Distance from land required for the construction of the Proposed Scheme <sup>12</sup> (m) and orientation
040-RE2-173002 (EC-07-069-F6)	Land south-east of Nechells Gas Holders and north-east of Aston Church Road	SP 010 891	Refugia survey	02 May 2013	30 May 2013 Partially complete	3	Reptiles assumed present as surveys not completed	26	Within land required
EC-07-069-D5	Land between A47 Heartlands Parkway and B4114 Washwood Heath Road	SP 096 888	Refugia survey	15 April 2013	24 June 2013	7	Reptiles likely absent	26	Within land required
EC-07-069-C6	Land west of the River Rea SLINC	SP 092 880	Walkover only	15 April 2013	N/A	1	Scoped out	26	Within land required
EC-07-069-C7	Land west of the Grand Union Canal SLINC	SP 092 875	Walkover only	19 March 2013	N/A	1	Scoped out	26	Within land required

- 3.4.2 Desk study records are listed in Table 8. The records identified grass snake and slow-worm as present within the study area.

Table 8: Desk study records of reptiles with CFA23, CFA24, CFA25 and CFA26.

Scientific Name	Common Name	OS Grid Reference	Location	Comments	Record Validity <sup>13</sup>	Date	Nature Conservation Status <sup>14</sup>	Record Source	Within the land required for the construction of the Proposed Scheme	CFA
<i>Natrix natrix</i>	Grass snake	SP 25750 82650	Eaves Green Lane	one sighted by owner of Redlum Kennels by field. Now in hibernation in stables.	Considered correct	03 October 1999	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	Warwickshire Biological Record Centre	No	23
<i>Natrix natrix</i>	Grass snake	SP 25750 82650	Eaves Green Lane	one sighted by owner of Redlum Kennels by field. Now in hibernation in stables. This animal has been injured.	Considered correct	03 October 1999	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	Warwickshire Biological Record Centre	No	23
<i>Anguis fragilis</i>	Slow-worm	SP 16750 85450	Path by Marsden Green rail station	one sighted	Considered correct	June 2004	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	24
<i>Anguis fragilis</i>	slow-worm	N/A	Chelmsley Wood area	one single record	Found to be located in the wrong	Unknown	Sect.41 - Species of Principal Importance, WCA5/9.1k/l,	Warwickshire Biological Record	N/A	24

<sup>13</sup> Validation undertaken by the record centre that the data was obtained from.

<sup>14</sup> Legislation: WCA = The Wildlife and Countryside Act (1981), as amended.

Scientific Name	Common Name	OS Grid Reference	Location	Comments	Record Validity <sup>13</sup>	Date	Nature Conservation Status <sup>14</sup>	Record Source	Within the land required for the construction of the Proposed Scheme	CFA
					location and not within the land required for the construction of the Proposed Scheme		WCA5/9.5a, WCA5/9.5b	Centre		
<i>Anguis fragilis</i>	Slow-worm	SP 14150 85450	Gleneagles Road, Garrett's Green	one sighted	Considered correct	03 August 2004	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	25
<i>Anguis fragilis</i>	Slow-worm	SP 16625 86045	Opposite the Bell Inn	seven sighted during grassland management	Considered correct	September 2006	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	25
<i>Natrix natrix</i>	Grass snake	SP 13975 91635	Castle Vale	one sighted	Considered correct	June 2004	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	25
<i>Anguis fragilis</i>	Slow-worm	SP 12050 86150	Unknown	five sighted	Considered correct	July 2005	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	26
<i>Anguis</i>	Slow-	SP 08250	Hawthorn Road,	one sighted	Considered	July 2003	Sect.41 - Species of Principal Importance,	EcoRecord	No	26

Scientific Name	Common Name	OS Grid Reference	Location	Comments	Record Validity <sup>13</sup>	Date	Nature Conservation Status <sup>14</sup>	Record Source	Within the land required for the construction of the Proposed Scheme	CFA
<i>fragilis</i>	worm	93550	Kingstanding		correct		WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b			
<i>Anguis fragilis</i>	Slow-worm	SP 09650 84350	Gough Road, Greet	one sighted	Considered correct	2003	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	26
<i>Anguis fragilis</i>	Slow-worm	SP 08350 90250	Village Road, Witton	one sighted	Considered correct	August 2005	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	26
<i>Anguis fragilis</i>	Slow-worm	SP 11425 83465	Mayfield Road	one sighted by rail embankment	Considered correct	2004 - 2005	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	26
<i>Natrix natrix</i>	Grass snake	SP 07050 85250	Garden, 28 Kemble Croft, Edgbaston	one seen by gardener, but not confirmed	Requires confirmation	05 September 1999	Sect.41 - Species of Principal Importance, WCA5/9.1k/l, WCA5/9.5a, WCA5/9.5b	EcoRecord	No	26

- 3.4.3 Connective habitat suitable for use by grass snake exists between grass snake records in Coleshill Junction area (CFA21) and both Birmingham Interchange and Chelmsley Wood area (CFA24) and Castle Bromwich and Bromford area (CFA25) via rail corridors and watercourses.

### Field survey results

- 3.4.4 A review of aerial photography suggested that many areas appeared suitable for supporting reptiles; however, when ground-truthed during field survey the quality, connectivity and suitability of habitats for reptile species was poor. Other than at Marsh Lane Nature Reserve where the habitats are sensitively managed for other species requiring similar habitats to reptiles, the quality of habitats within Balsall Common and Hampton-in Arden (CFA23) and Birmingham Interchange and Chelmsley Wood (CFA24) was poor. This judgement was based on a lack of field margins / headland, intense grazing pressure and/or few areas of permanently undisturbed habitat. The connectivity through the landscape for grass snake is provided by the various waterways, roadside verges and existing rail corridors that permeate the landscape.
- 3.4.5 Sites identified as providing exceptional habitat suitability for reptiles included:
- Sixteen Acre Wood (040-RE2-151001); the wood north of Berkswell Marsh SSSI (Map EC-07-051-B5, Volume 5, Map Book Ecology); land north of Lavender Hall Fisheries (Map EC-07-051-H7, Volume 5, Map Book Ecology) and land north-west of Sixteen Acre Wood (Map EC 07-051-A5, Volume 5, Map Book Ecology) within the Balsall Common and Hampton-in-Arden area (CFA23);
  - Coleshill & Bannerly Pools SSSI east and west of A446 Stonebridge Road (Map EC-07-054a-G3 and H5, Volume 5, Map Book Ecology) within the Birmingham Interchange and Chelmsley Wood area (CFA24); and
  - land north of Park Hall SINC (040-RE2-165001) and Park Hall SINC (040-RE2-165002) within the Castle Bromwich and Bromford area (CFA25).
- 3.4.6 A total of 62 sites were identified for survey and surveys were completed at 37 of these sites. Surveys were partially completed at a further 14 of these sites and access was not available to the remaining sites. Surveys were undertaken between 25 May 2012 and 12 October 2012 and/or between 08 April 2013 and 28 June 2013. These sites are listed in Table 7 and shown in Map Series EC-07 (Volume 5, Map Book Ecology), along with the associated results.
- 3.4.7 Eleven sites were visited and subject to a walkover survey to assess their suitability for reptiles. After this initial survey these sites were scoped out as they were not deemed to contain habitat which had the potential to support reptiles. A further site at the land south of the River Tame SLINC and south of the M6 (Map EC-07-069-I6, Volume 5, Map Book Ecology) could not undergo a walkover survey due to health and safety issues. This site was deemed to not contain suitable habitats to support reptiles from aerial photography and vantage point survey.
- 3.4.8 Of the 51 sites surveyed, reptiles were recorded at five. Recorded species included grass snake, common lizard and slow-worm. Adders were considered likely to be



absent from the study area. Reptile species were considered likely to be absent from 32 of the surveyed sites, and reptile presence was assumed at 14 sites where surveys were partially complete as absence cannot be proved without a full set of surveys.

- 3.4.9 All five sites where reptiles were recorded made up three distinct areas across the West Midlands Metropolitan area, and are adjacent to one another. They are considered important for the maintenance of local reptile populations with connectivity between each area. Limited hibernaculum was identified across the five sites indicating the importance of adjacent habitat for utilisation as hibernation sites.

#### *Balsall Common and Hampton-in-Arden area (CFA23)*

- 3.4.10 Twenty-nine sites were identified as requiring survey. Population size class surveys were completed at 18 sites, and partially completed at one. Two sites were scoped out and no surveys were undertaken at a total of eight sites which had potential to support reptiles but there was no access.
- 3.4.11 A low population of common lizard was recorded within Sixteen Acre Wood (040-RE2-151001).
- 3.4.12 The habitats surrounding this area were considered to be excellent for reptiles. A series of woodland parcels with suitable edge habitats were connected by hedgerows and open farmland, although provision of suitable field edge habitats (uncultivated margins) was lacking. The woodland parcels provided good refuge opportunities and areas of stumps and logs may provide more permanent habitat. The field within the Marlowes and land south-west of Marlowes (Map EC-07-051-E6, Volume 5, Map Book Ecology) provided suitable basking and foraging habitat for reptile species.

#### *Birmingham Interchange and Chelmsley Wood area (CFA24)*

- 3.4.13 Twenty-six sites were identified as requiring population size class survey. Surveys were completed at eight sites and partially completed at nine sites. Four sites were scoped out and no surveys were undertaken at a total of four sites which had the potential to support reptiles because of no access.
- 3.4.14 A low population of grass snake was recorded at Park Farm (040-RE2-155004), from the area east of the A452 Chester Road. This site was within the land required for the construction of the Proposed Scheme.
- 3.4.15 A low population of slow-worm was recorded on the land forming easternmost roadside verge of A446 Stonebridge Road south-bound (040-RE2-158003). This site was within the land required for the construction of the Proposed Scheme.
- 3.4.16 The main areas of suitable habitat for the low population of slow-worm recorded fell within the land forming easternmost roadside verge of A446 Stonebridge Road south-bound (040-RE2-158003), Coleshill & Bannerly Pools SSSI east of A446 Stonebridge Road (Map EC-07-054a-G3, Volume 5, Map Book Ecology) and the A452 Chester Road roadside verge. These habitats provided suitable foraging, basking and hibernation sites. The A446 Stonebridge Road verge faced west and provided suitable edge habitat for basking and foraging. Coleshill & Bannerly Pools SSSI east of A446 Stonebridge Road are likely to provide areas used as more permanent habitat for slow-worm (hibernation).

- 3.4.17 Park Farm (040-RE2-155004) encompassed areas both east and west of the A452 Chester Road and had suitable reptile habitat. Potential prey for reptiles were likely to exist amongst the habitats of the nearby disused rail corridor, watercourse (Hollywell Brook) marshy grassland, semi-improved grassland, hedgerows, dry woodland and wet woodland.

*Castle Bromwich and Bromford area (CFA25)*

- 3.4.18 Thirteen sites were identified as requiring population size class surveys. Surveys were completed at seven sites, partially completed at two and one site was scoped out. No surveys were undertaken at three sites which had potential to support reptiles but there was no access.
- 3.4.19 A low population of grass snake was recorded within two adjacent sites: Park Hall SINC (040-RE2-165002) and Land north of Park Hall SINC (040-RE2-165001). Both of these sites are within the land required for the construction of the Proposed Scheme.
- 3.4.20 The Birmingham to Derby rail line corridor, land west of Plants Brook (Volume 5: Map EC-07-067-E6) provided an extension to the suitable reptile habitat on either side of it on the land north of Park Hall (040-RE2-165001), where juvenile grass snake were recorded. Habitat provision along the rail corridor included edge habitat, suitable for basking, and significant refuge opportunities in the form of piles of logs, brash, rubble and the trunking for electric cabling. The habitat provided by the rail corridor extended beyond this area into central Birmingham, but the lack of other resources, such as suitable prey items, was anticipated to significantly reduce the likelihood of grass snake being present further within the Proposed Scheme into Birmingham.

*Washwood Heath to Curzon Street area (CFA26)*

- 3.4.21 Thirteen sites were identified as requiring population size class surveys. Surveys were completed at three sites and partially completed at a further three. Four sites were scoped out and no surveys were undertaken at a total of three sites which had potential to support reptiles but there was no access. No reptiles were recorded.

## 4 Breeding birds

### 4.1 Introduction

- 4.1.1 This section of the appendix presents details of baseline information relating to breeding birds for the section of the Proposed Scheme that will pass through CFA23, CFA24, CFA25 and CFA26.

### 4.2 Methodology

- 4.2.1 Details of the standard methodology for breeding bird survey are provided in Ecology Technical Note: Field Survey Methods and Standards (Volume 5: Appendix CT-001-000/2).
- 4.2.2 Specific surveys were undertaken to determine the presence of peregrine, barn owl and black redstart. The West Midland Bird Club annual reports<sup>15</sup> (2008 to 2010) and the bird reports<sup>16</sup> for Marsh Lane Nature Reserve (2008 to 2013) were reviewed to determine where key species of importance which are local or scarce (including those listed on Annex 1 of the EC Birds Directive<sup>17</sup>, Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)<sup>18</sup> and some which are Red or Amber List Birds of Conservation Concern<sup>19</sup>) have been recorded, and to inform the selection of survey sites. Table 9 provides a summary of all sites at which breeding birds were surveyed within CFA23, CFA24, CFA25 and CFA26. This information can be cross referenced with the accompanying Map series EC-08 (Volume 5, Map Book Ecology).

Table 9: Summary of sites at which breeding bird surveys was undertaken in CFA23, CFA24, CFA25 and CFA26

Ecology survey code	Survey site/location	OS grid reference	Habitat types included in survey	Survey date	CFA
040-BB1-151001	Land between A452 Kenilworth, Park Lane and Berkswell Marsh SSSI	SP 233 792	Farmland and woodland.	08 April 2013; 22 April 2013; 07 May 2013; 21 May 2013; 06 June 2013	23
040-BB1-153001	Marsh Lane Nature Reserve to Patrick Farm Balsall Common	SP 217 806	Flooded gravel pits and floodplain grassland.	09 April 2013; 23 April 2013; 08 May 2013; 20 May 2013; 10 June 2013	23
040-BB1-156001	Park Farm, Middle Bickenhill	SP 204 836	Farmland and woodland.	10 April 2013; 24 April 2013; 09 May 2013; 22 May 2013;	24

<sup>15</sup> West Midland Bird Club (2010 to 2012). West Midland Bird Club 2008 to 2010: Annual Reports 75 to 77. West Midland Bird Club.

<sup>16</sup> Packington Estate Enterprises Ltd (2010 to 2013). Marsh Lane Bird Reports 2008 to 2013. Packington Hall, Meriden.

<sup>17</sup> European Commission; The Birds Directive; <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0147:EN:NOT>; accessed: March 2013.

<sup>18</sup> The National Archives; The Wildlife and Countryside Act 1981; <http://www.legislation.gov.uk/ukpga/1981/69/contents>; accessed: July 2012.

<sup>19</sup> Royal Society for the Protection Birds (2009). Birds of Conservation Concern 3. RSPB, Sandy.

Ecology survey code	Survey site/location	OS grid reference	Habitat types included in survey	Survey date	CFA
				12 June 2013	
040-BB1-159001	Brickfield Farm, Chelmsley Wood	SP 194 861	Farmland and woodland.	11 April 2013; 25 April 2013; 10 May 2013; 23 May 2013; 11 June 2013	24
040-BB1-166002	Land north of Park Hall SINC	SP 198 911	Willow scrub, tall ruderal and eutrophic standing water.	12 April 2013; 26 April 2013; 16 May 2013; 24 May 2013; 18 June 2013	25
040-BB1-166001	Park Hall SINC, Castle Bromwich	SP 156 908	Marshy grassland and open water.	18 May 2012; 13 June 2012; 19 June 2012; 25 June 2012; 04 July 2012	25
040-BB1-168001	Fort Dunlop, Bromford	Undisclosed location	Building.	18 April 2013; 29 April 2013; 17 May 2013; 28 May 2013; 14 June 2013	25
040-BB1-172001	Grand Union Canal SLINC, Saltley	SP 093 885	Watercourses and scrub.	18 April 2013; 29 April 2013; 17 May 2013; 28 May 2013; 14 June 2013	26
040-BB1-174001	Dollman Street, Duddeston	SP 087 874	Buildings and ephemeral and short perennial vegetation.	18 April 2013; 29 April 2013; 17 May 2013; 28 May 2013; 14 June 2013	26

### 4.3 Deviations, constraints and limitations

- 4.3.1 Access was available to all sites identified for survey. Surveys occurred 10 days apart except where there were access constraints that required visits to be completed in certain time frames.

### 4.4 Baseline

- 4.4.1 The sites identified for survey based on the details of the baseline records and the habitat types present are detailed in this section. The key species of importance that were recorded, which are local or scarce including those subject to the provisions of

legislation (Annex 1 of the EC Birds Directive<sup>20</sup> and Schedule 1 of the Wildlife and Countryside Act<sup>21</sup>) and nature conservation concern (Red or Amber List of the Birds of Conservation Concern<sup>22</sup>), are provided for each of the survey sites in Table 10. Survey results maps are provided in Map series EC-08 (Volume 5, Map Book Ecology).

### **Balsall Common and Hampton-in-Arden area (CFA23)**

#### *Land between A452, Park Lane and Berkswell Marsh SSSI*

- 4.4.2 Breeding territories of 25 species were recorded at the land between A452 Kenilworth Road, Park Lane and Berkswell Marsh SSSI, including one Red List (song thrush) and five Amber List species (stock dove, green woodpecker, willow warbler, whitethroat and mistle thrush).
- 4.4.3 Of note was the presence of 17 occupied nests of grey heron at the Marlowes Wood (040-BB3-150001) located between the A452 Kenilworth Road and Berkswell.

#### *Marsh Lane Nature Reserve to Patrick Farm, Balsall Common*

- 4.4.4 Breeding territories of 31 species were recorded at Marsh Lane Nature Reserve to Patrick Farm, which included four Red List (lapwing, skylark, song thrush and house sparrow) and twelve Amber List species (gadwall, tufted duck, oystercatcher, black-headed gull, common tern, collared dove, barn owl, swallow, willow warbler, whitethroat, dunnoek and reed bunting). In addition to being included on the Amber List, common tern and barn owl are Annex 1 and Schedule 1 species respectively.
- 4.4.5 Key species records were:
- a gadwall territory at Marsh Lane Nature Reserve;
  - a tufted duck territory at Marsh Lane Nature Reserve;
  - three oystercatcher occupied nests at Marsh Lane Nature Reserve;
  - five lapwing nests at Marsh Lane Nature Reserve;
  - approximately 50 black-headed gull occupied nests at Marsh Lane Nature Reserve;
  - three common tern occupied nests at Marsh Lane Nature Reserve; and
  - a barn owl nest at Patrick Farm, which will be impacted by the Proposed Scheme.

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<sup>20</sup> European Commission; The Birds Directive; <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0147:EN:NOT>; accessed: March 2013

<sup>21</sup> The National Archives; The Wildlife and Countryside Act 1981; <http://www.legislation.gov.uk/ukpga/1981/69/contents>; accessed: July 2012

<sup>22</sup> Royal Society for the Protection Birds (2009). Birds of Conservation Concern 3. RSPB, Sandy.

## Birmingham Interchange and Chelmsley Wood area (CFA24)

### *Park Farm, Middle Bickenhill*

- 4.4.6 Breeding territories of 18 species were recorded at Park Farm, including three Red List (skylark, house sparrow and linnet) and four Amber List species (green woodpecker, dunnoek and reed bunting).
- 4.4.7 The habitats within the survey site were found to support a low diversity of common farmland and woodland species.

### *Brickfield Farm, Chelmsley Wood*

- 4.4.8 Breeding territories of 16 species were recorded at Park Farm, including two Red List (whitethroat and dunnoek) and two Amber List species (linnet and yellowhammer).
- 4.4.9 The habitats within the survey site were found to support a low diversity of common farmland and woodland species.

## Castle Bromwich and Bromford area (CFA25)

### *Land north of Park Hall SINC*

- 4.4.10 Breeding territories of 27 species were recorded at the land north of Park Hall SINC, which included two Red List (lesser spotted woodpecker and song thrush) and 10 Amber List species (gadwall, mallard, tufted duck, little grebe, stock dove, green woodpecker, willow warbler, whitethroat, dunnoek and reed bunting).
- 4.4.11 Key species records were:
- two gadwall territories;
  - a tufted duck territory;
  - a little grebe territory; and
  - lesser spotted woodpecker occupied nest (a nationally rare species according to the UK Rare Breeding Birds<sup>23</sup>).

### *Park Hall SINC, Castle Bromwich*

- 4.4.12 Breeding territories of 28 species were recorded at Park Hall SINC, which included two Red List (grasshopper warbler and song thrush) and six Amber List species (mallard, stock dove, kingfisher, whitethroat, dunnoek and reed bunting). In addition to being Amber List species, kingfisher is also listed on Schedule 1.
- 4.4.13 Key species of importance were garden warbler, grasshopper warbler and kingfisher. An occupied kingfisher nest was recorded during the survey, which will not be impacted by the Proposed Scheme.

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<sup>23</sup> Holling M. and the Rare Breeding Bird Panel (2012), Rare breeding birds in the United Kingdom in 2010. British Birds, 105, 352-416.

*Bromford*

- 4.4.14 A specific survey at this site confirmed the presence of an occupied peregrine nest site that will not be impacted by the Proposed Scheme.

**Washwood Heath to Curzon Street area (CFA26)**

*Grand Union Canal SLINC and River Rea*

- 4.4.15 Breeding territories of 16 species were recorded adjacent to the Grand Union Canal SLINC and River Rea in Saltley, which included four Amber List species (mallard, tufted duck, whitethroat and bullfinch).
- 4.4.16 The habitats within the survey site were found to support a low diversity of common species.

*Dollman Street, Duddeston*

- 4.4.17 Black redstart was not recorded during the specific survey at this site.

Table 10: Protected and/or notable bird records from field surveys undertaken in CFA23, CFA24, CFA25 and CFA26 inclusive



Ecology survey code	Common name	Scientific name	Status	Location	OS grid reference	Number of confirmed breeding territories	Number of surveys during which species was recorded	Further details
040-BB3-151001	Grey Heron	<i>Ardea cinerea</i>	Green List	Marlowes wood between A452 Kenilworth Road and Berkswell	SP 234 790	1 heronry that comprised 17 occupied nests	5	17 occupied nests.
040-BB3-153001	Gadwall	<i>Anas strepera</i>	Amber List	Marsh Lane Nature Reserve	SP 217 803	1	5	An occupied territory
040-BB3-153001	Tufted Duck	<i>Aythya fuligula</i>	Amber List	Marsh Lane Nature Reserve	SP 216 805	1	5	An occupied territory
040-BB3-153001	Oystercatcher	<i>Haematopus ostralegus</i>	Amber List	Marsh Lane Nature Reserve	SP 216 805	3	5	Three occupied nests
040-BB3-153001	Lapwing	<i>Vanellus vanellus</i>	Red List	Marsh Lane Nature Reserve	SP 218 804	5	5	Five occupied nests
040-BB3-153001	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Amber List	Marsh Lane Nature Reserve	SP 216 806	c.50	5	Five occupied nests
040-BB3-153001	Common Tern	<i>Sterna hirundo</i>	Annex 1 and Amber List	Marsh Lane Nature Reserve	SP 216 805	3	5	Five occupied nests
040-BB3-153001	Barn Owl	<i>Tyto alba</i>	Schedule 1 and Amber List	Patrick Farm	SP 216 812	1	5	An occupied nest
040-BB3-153001	Garden Warbler	<i>Sylvia borin</i>	Green List	Marsh Lane Nature Reserve	SP 217 807	1	3	A singing territorial bird
040-BB3-166002	Gadwall	<i>Anas strepera</i>	Amber List	Land north of Park Hall SINC	SP 156 911	1	5	An occupied territory
040-BB3-166002	Tufted Duck	<i>Aythya fuligula</i>	Amber List	Land north of Park Hall SINC	SP 156 912	1	5	An occupied territory
040-BB3-	Little Grebe	<i>Tachybaptus</i>	Amber List	Land north of Park Hall	SP 158 910	1	5	An occupied

166002		<i>ruficollis</i>		SINC				territory
040-BB3-166002	Gadwall	<i>Anas strepera</i>	Amber List	Land north of Park Hall SINC	SP 159 291	1	5	An occupied territory
040-BB3-166002	Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	Nationally Rare and Red List	Land north of Park Hall SINC	SP 155 910	1	3	An occupied nest
040-BB3-166001	Kingfisher	<i>Alcedo atthis</i>	Schedule 1 and Amber List	Park Hall SINC	SP 160 910	1	5	An occupied nest
040-BB3-166001	Grasshopper Warbler	<i>Locustella naevia</i>	Red List	Park Hall SINC	SP 153 907	1	3	A singing territorial bird
040-BB3-166001	Garden Warbler	<i>Sylvia borin</i>	Green List	Park Hall SINC	SP 159 908	1	3	A singing territorial bird
040-BB3-168001	Peregrine	<i>Falco peregrinus</i>	Green List	Bromford	Undisclosed location outside the land required	1	3	An occupied nest

4.4.18 The key areas of breeding bird habitat were at:

- land between A452 Kenilworth Road, Park Lane and Berkswell Marsh SSSI Park Lane and Berkswell Marsh SSSI;
- Marsh Lane Nature Reserve;
- The land north of Park Hall SINC;
- Park Hall SINC; and
- Fort Dunlop.

4.4.19 Key species of importance were recorded at the following locations. Marlowes wood between the A452 Kenilworth Road and Berkswell supported a breeding colony of grey heron that comprised 17 occupied nests. Marsh Lane Nature Reserve provided habitat for breeding populations of oystercatcher, lapwing, black-headed gull and common tern. A barn owl occupied nest was recorded at Patrick Farm, which will be impacted by the Proposed Scheme. The land north of Park Hall SINC provided breeding habitat for a pair of lesser spotted woodpeckers, which is a nationally rare species. Park Hall SINC provided breeding habitat for kingfisher, garden warbler and grasshopper warbler. A nest occupied by peregrine was recorded in Bromford, but will not be impacted by the Proposed Scheme.

## 5 Wintering and passage birds

### 5.1 Introduction

- 5.1.1 This section of the appendix presents details of baseline information relating to wintering and passage birds for the section of the Proposed Scheme that will pass through CFA23, CFA24, CFA25 and CFA26.

### 5.2 Methodology

- 5.2.1 Details of the standard methodology for wintering and passage bird survey are provided in Ecology Technical Note: Field Survey Methods and Standards (Volume 5: Appendix CT-001-000/2).
- 5.2.2 A Wetland Bird Survey (WeBS) of the flooded gravel pits was undertaken at Marsh Lane Nature Reserve, because the site is known to attract wetland birds, such as ducks and waders.
- 5.2.3 The requirement for Vantage Point Survey (VPS) was confirmed at one location in the study area, where the proposed viaduct crosses the River Blythe near Patrick Farm. This location was selected for a VPS because it is known to be located within a flight corridor that is regularly used by large waterbirds, including mute swan, greylag goose and cormorant, which commute between Marsh Lane Nature Reserve and Packington Park.
- 5.2.4 The West Midland Bird Club annual reports<sup>24</sup> (2008 to 2013) and bird reports for Marsh Lane Nature Reserve<sup>25</sup> (2008 to 2013) were reviewed to determine where key species of importance which are local or scarce (including those listed on Annex 1 of the EC Birds Directive<sup>26</sup>, Schedule 1 of the Wildlife and Countryside Act 1981<sup>27</sup> (as amended) and some which are Red or Amber List Birds of Conservation Concern<sup>28</sup>) had been recorded, and to inform the selection of sites for further survey sites. Wetland Bird Survey (WeBS) data for Marsh Lane Nature Reserve for the winters 2009-10, 2010-11 and 2011-12 was obtained from the British Trust for Ornithology (BTO) and was also reviewed.
- 5.2.5 Table 11 summarises those locations where survey for wintering/passage birds was undertaken. This information can be cross referenced with that provided in accompanying Map series EC-09 (Volume 5, Map Book Ecology).

<sup>24</sup> West Midland Bird Club (2010 to 2012). West Midland Bird Club 2008 to 2010: Annual Reports 75 to 77. West Midland Bird Club

<sup>25</sup> Packington Estate Enterprises Ltd (2010 to 2013). Marsh Lane Bird Reports 2008 to 2013. Packington Hall, Meriden.

<sup>26</sup> European Commission; The Birds Directive; <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0147:EN:NOT>; accessed: March 2013

<sup>27</sup> The National Archives; The Wildlife and Countryside Act 1981; <http://www.legislation.gov.uk/ukpga/1981/69/contents>; accessed: July 2012

<sup>28</sup> Royal Society for the Protection Birds (2009). Birds of Conservation Concern 3. RSPB, Sandy.

Table 11: Summary of wintering/passage bird field surveys undertaken in CFA23, CFA24, CFA25 and CFA26

Ecology survey code	Survey site name and location	OS grid reference	Habitat types included in survey	Survey date(s)	CFA
040-WB1-153001	Marsh Lane Nature Reserve to Patrick Farm, Balsall Common	SP 217 806	Flooded gravel pits, farmland and floodplain grassland.	27 September 2012; 25 October 2012; 29 November 2012; 19 December 2012; 24 January 2013; 19 February 2013; 08 March 2013	23
040-WB1-154001	River Blythe SSSI, Hampton-in-Arden	SP 215 814	Watercourse, farmland and floodplain grassland.	23 October 2012; 28 November 2012; 18 December 2012; 22 January 2013; 20 February 2013; 11 March 2013	23
040-WB1-155001	Diddington Lane, Hampton-in-Arden	SP 214 817	Farmland and woodland.	24 September 2012; 22 October 2012; 26 November 2012; 17 December 2012; 29 January 2013; 25 February 2013; 07 March 2013	23
040-WB1-157001	Park Farm, Middle Bickenhill	SP 204 836	Farmland and woodland.	21 September 2012; 19 October 2012; 23 November 2012; 14 December 2012; 28 January 2012; 15 February 2013; 06 March 2013	24
040-WB1-166001	Land north of Park Hall SINC	SP 198 911	Disused sewage sludge lagoons and scrub.	10 October 2012; 26 October 2012; 30 November 2012; 20 December 2012; 30 January 2013; 21 February 2013; 20 March 2013	25
040-WB1-165001	Park Hall SINC, Castle Bromwich	SP 156 908	Watercourse, ponds, marshy grassland, scrub and woodland.	20 September 2012; 18 October 2012; 22 November 2012; 13 December 2012; 17 January 2013; 14 February 2013; 04 March 2013	25

## 5.3 Deviations, constraints and limitations

- 5.3.1 No deviations to the standard methodology were applied and all surveys were conducted according to the methodology. Access was received to all locations scoped for surveys.

## 5.4 Baseline

- 5.4.1 Details of key species of importance that were recorded, including those subject to the provisions of legislation (Annex 1 of the EC Birds Directive<sup>29</sup> and Schedule 1 of the Wildlife and Countryside Act<sup>30</sup>) and nature conservation concern (Red or Amber List of the Birds of Conservation Concern<sup>31</sup>), are provided for each of the survey sites in Table 12. Survey results maps are provided in Map series EC-09 (Volume 5, Map Book Ecology).

### Balsall Common and Hampton-in-Arden area (CFA23)

#### *Marsh Lane, Balsall Common*

- 5.4.2 Notable WeBS monthly peak counts were recorded for three species at Marsh Lane Nature Reserve<sup>32</sup> during 2010-11:
- 1,073 wigeon;
  - 1,154 lapwing; and
  - 105 snipe.
- 5.4.3 A total of 28 species of water bird were recorded at Marsh Lane, including two Red List (lapwing and herring gull) and 18 Amber List species ([feral] pink-footed goose, [feral] greylag goose, shelduck, wigeon, gadwall, teal, mallard, shoveler, pochard, tufted duck, little grebe, oystercatcher, ringed plover, snipe, black-headed gull, common gull, lesser black-backed gull and great black-backed gull).
- 5.4.4 Key species<sup>33</sup> were:
- 234 wigeon on 19 February 2013;
  - 39 gadwall on 25 October 2012;
  - 85 teal on 25 October 2012;
  - 39 shoveler on 27 September 2012;
  - 18 pochard on 29 November 2012;
  - 16 tufted duck on 29 November 2012;
  - 4 little grebe on 25 October 2012;
  - 273 lapwing 25 October 2012; and

<sup>29</sup> European Commission; The Birds Directive; <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0147:EN:NOT>; accessed: March 2013

<sup>30</sup> The National Archives; The Wildlife and Countryside Act 1981; <http://www.legislation.gov.uk/ukpga/1981/69/contents>; accessed: July 2012

<sup>31</sup> <sup>31</sup> Royal Society for the Protection Birds (2009). Birds of Conservation Concern 3. RSPB, Sandy.

<sup>32</sup> Marsh Lane Nature Reserve includes a more extensive area than was surveyed which is more distant from land required for the construction of the Proposed Scheme.

<sup>33</sup> In reference to the national bird population estimates. Musgrove, A. et al (2013). Population estimates of birds in Great Britain and the United Kingdom. British Birds, Vol 106, No 2, pp 64-100

- 35 snipe on 24 January 2013.

#### *River Blythe SSSI, Hampton-in-Arden*

- 5.4.5 The proposed viaduct will span the River Blythe SSSI at a location near Patrick Farm, where there was an established water bird flyway between water-bodies at Marsh Lane Nature Reserve and Packington Park. There will be a risk that large water birds will collide with the proposed viaduct catenary and trains at a height of approximately 16m above ground level.
- 5.4.6 Vantage Point Surveys (VPS) were undertaken for a total duration of 36 hours between October 2012 and March 2013, in order to assess collision risk to large water birds associated with this viaduct span. The height at which large water birds were flying at this location was recorded according to three height classes: less than 12m, 12 -20m and more than 20m above ground level.
- 5.4.7 Four species of large water bird were recorded during the VPS visits: mute swan; (feral) greylag goose; cormorant; and grey heron. Greylag goose is an Amber List species. Mute swan, cormorant and grey heron are Green List species. These survey results are provided in Table 13.

#### *Diddington Lane, Hampton-in-Arden*

- 5.4.8 A total of 47 species were recorded at Diddington Lane, including 10 Red List (lapwing, skylark, starling, fieldfare, song thrush, redwing, house sparrow, linnet, lesser redpoll and yellowhammer) and 14 Amber List species (teal, mallard, kestrel, woodcock, black-headed gull, lesser black-backed gull, stock dove, swallow, house martin, mistle thrush, dunnoek, grey wagtail, meadow pipit and reed bunting).
- 5.4.9 Key species<sup>34</sup> were:
- 2 teal on 07 March 2013; and
  - a woodcock on 25 February 2013.

#### **Birmingham Interchange and Chelmsley Wood area (CFA24)**

##### *Park Farm, Middle Bickenhill*

- 5.4.10 A total of 46 species were recorded at Park Farm, including eight Red List (lapwing, skylark, starling, fieldfare, song thrush, redwing, linnet and yellowhammer) and 14 Amber List species (kestrel, oystercatcher, golden plover, black-headed gull, lesser black-backed gull, stock dove, barn owl, green woodpecker, swallow, mistle thrush, dunnoek, grey wagtail, meadow pipit and bullfinch). In addition to being included on the Amber List, golden plover and barn owl are respectively Annex 1 and Schedule 1 species.
- 5.4.11 Key species<sup>34</sup> were:

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<sup>34</sup> In reference to the national bird population estimates. Musgrove, A. et al (2013). Population estimates of birds in Great Britain and the United Kingdom. British Birds, Vol 106, No 2, pp 64-100

- 35 golden plover on 14 December 2012;
- a single barn owl on 15 February 2013 and 06 March 2013;
- 41 skylark on 28 January 2013; and
- 162 fieldfare on 06 March 2013.

### **Castle Bromwich and Bromford area (CFA25)**

#### *Land north of Park Hall SINC*

5.4.12 A total of 50 species were recorded at the land north of Park Hall SINC, including six Red List (herring gull, starling, fieldfare, song thrush, redwing and lesser redpoll) and 18 Amber List species (shelduck, gadwall, teal, mallard, shoveler, tufted duck, kestrel, snipe, woodcock, green sandpiper, black-headed gull, lesser black-backed gull, stock dove, green woodpecker, dunnoek, grey wagtail, bullfinch and reed bunting).

5.4.13 Key species<sup>34</sup> were;

- 2 shelduck on 21 February 2013;
- 11 gadwall on 21 February 2013;
- 73 teal on 20 December 2012;
- 24 shoveler on 20 March 2013;
- 2 tufted duck on 10 October 2012;
- 46 snipe on 30 November 2012;
- a woodcock on 20 December 2012; and
- a green sandpiper on 10 October 2012.

#### *Park Hall SINC, Castle Bromwich*

5.4.14 A total of 50 species were recorded at Park Hall SINC, including four Red List (starling, fieldfare, song thrush and redwing) and 20 Amber List species (gadwall, teal, mallard, shoveler, little grebe, kestrel, snipe, woodcock, green sandpiper, black-headed gull, lesser black-backed gull, stock dove, green woodpecker, swallow, house martin, mistle thrush, dunnoek, grey wagtail, bullfinch and reed bunting).

5.4.15 Key species were:

- a woodcock on 18 October 2012; and
- a green sandpiper on 13 December 2012.



Table 12: Relevant records of protected and/or notable wintering birds recorded during field surveys for CFA23, CFA24, CFA25 and CFA26

Ecology survey code	Common name	Scientific name	Status	Location	OS grid reference	Peak count of individuals across the survey period	Number of surveys during which the species was recorded	Further details
040-WB2-153001	Wigeon	<i>Anas penelope</i>	Amber List	Marsh Lane	SP 215 811	234	7	Attracted to open grassland adjacent to the River Blythe
040-WB2-153001	Gadwall	<i>Anas strepera</i>	Amber List	Marsh Lane	SP 215 805	39	7	Attracted to flooded gravel pits
040-WB2-153001	Teal	<i>Anas crecca</i>	Amber List	Marsh Lane	SP 216 806	85	7	Attracted to flooded gravel pits
040-WB2-153001	Shoveler	<i>Anas clypeata</i>	Amber List	Marsh Lane	SP 216 807	39	4	Attracted to flooded gravel pits
040-WB2-153001	Pochard	<i>Aythya ferina</i>	Amber List	Marsh Lane	SP 216 806	18	6	Attracted to flooded gravel pits
040-WB2-153001	Tufted Duck	<i>Aythya fuligula</i>	Amber List	Marsh lane	SP 215 806	16	6	Attracted to flooded gravel pits
040-WB2-153001	Little Grebe	<i>Tachybaptus ruficollis</i>	Amber List	Marsh Lane	SP 216 806	4	4	Attracted to flooded gravel pits
040-WB2-153001	Lapwing	<i>Vanellus vanellus</i>	Red List	Marsh Lane	SP 216 805	273	7	Attracted to open grassland adjacent to the River Blythe
040-WB2-153001	Snipe	<i>Gallinago gallinago</i>	Amber List	Marsh Lane	SP 217 807	35	7	Attracted to rushes
040-WB2-154001	Teal	<i>Anas crecca</i>	Amber List	Diddington Lane	SP 214 817	2	1	Attracted to River Blythe
040-WB2-155001	Woodcock	<i>Scolopax rusticola</i>	Amber List	Diddington Lane	SP 210 825	1	1	Attracted to fallow land and ditches
040-WB2-155001	Golden Plover	<i>Pluvialis apricaria</i>	Annex 1 and Amber List	Park Farm	SP 211 832	35	1	Recorded once on arable land

Ecology survey code	Common name	Scientific name	Status	Location	OS grid reference	Peak count of individuals across the survey period	Number of surveys during which the species was recorded	Further details
040-WB2-157001	Barn Owl	<i>Tyto alba</i>	Schedule 1 and Amber List	Park Farm	SP 205 836	1	1	Attracted to field margins
040-WB2-157001	Lapwing	<i>Vanellus vanellus</i>	Red List	Park Farm	SP 211 833	8	1	Attracted to arable land
040-WB2-157001	Woodcock	<i>Scolopax rusticola</i>	Amber List	Park Farm	SP 208 835	1	1	Attracted to broadleaved semi-natural woodland
040-WB2-157003	Barn Owl	<i>Tyto alba</i>	Schedule 1 and Amber List	Park Farm	SP 209 832	1	2	Attracted to field margins
040-WB2-157003	Skylark	<i>Alauda arvensis</i>	Red List	Park Farm	SP 204 838	41	7	Attracted to fallow land
040-WB2-166001	Shelduck	<i>Tadorna tadorna</i>	Amber List	Land north of Park Hall SINC	SP 156 912	2	3	Attracted to sewage works lagoons
040-WB2-166001	Gadwall	<i>Anas strepera</i>	Amber List	Land north of Park Hall SINC	SP 158 911	11	3	Attracted to sewage works lagoons
040-WB2-166001	Teal	<i>Anas crecca</i>	Amber List	Land north of Park Hall SINC	SP 156 910	73	7	Attracted to sewage works lagoons
040-WB2-166001	Shoveler	<i>Anas clypeata</i>	Amber List	Land north of Park Hall SINC	SP 157 911	24	4	Attracted to sewage works lagoons
040-WB2-166001	Tufted Duck	<i>Aythya fuligula</i>	Amber List	Land north of Park Hall SINC	SP 158 910	2	3	Attracted to sewage works lagoons
040-WB2-166001	Snipe	<i>Gallinago gallinago</i>	Amber List	Land north of Park Hall SINC	SP 157 911	46	6	Attracted to sewage works lagoons
040-WB2-166001	Woodcock	<i>Scolopax rusticola</i>	Amber List	Land north of Park Hall SINC	SP 159 910	1	1	Attracted to sewage works lagoons
040-WB2-	Green	<i>Tringa ochropus</i>	Amber List	Land north of	SP 157 911	1	1	Attracted to sewage works

Ecology survey code	Common name	Scientific name	Status	Location	OS grid reference	Peak count of individuals across the survey period	Number of surveys during which the species was recorded	Further details
166001	Sandpiper			Park Hall SINC				lagoons
040-WB2-165001	Woodcock	<i>Scolopax rusticola</i>	Amber List	Park Hall SINC	SP 161 908	1	1	Attracted to woodland ditch
040-WB2-165002	Green Sandpiper	<i>Tringa ochropus</i>	Amber List	Park Hall SINC	SP 161 909	1	1	Attracted to flooded grassland
040-WB2-165001	Shoveler	<i>Anas clypeata</i>	Amber List	Park Hall SINC	SP 158 909	2	1	Attracted to open water
040-WB2-165001	Gadwall	<i>Anas strepera</i>	Amber List	Park Hall SINC	SP 157 908	12	3	Attracted to open water
040-WB2-165001	Teal	<i>Anas crecca</i>	Amber List	Park Hall SINC	SP 157 908	30	3	Attracted to open water
040-WB2-165001	Little Grebe	<i>Tachybaptus ruficollis</i>	Amber List	Park Hall SINC	SP 156 907	2	2	Attracted to open water

Table 13: Records of water birds recorded flying where the River Blythe SSSI viaduct is proposed

Common name	Scientific name	Status	Survey date	Maximum number of individuals recorded flying less than 12m above ground level	Maximum number of individuals recorded flying between 12m and 20m above ground level	Maximum number of individuals recorded flying more than 20m above ground level
Mute Swan	<i>Cygnus olor</i>	Green List	08:23, 23 October 2012		2	
Mute Swan	<i>Cygnus olor</i>	Green List	09:58, 23 October 2012		2	
Mute Swan	<i>Cygnus olor</i>	Green List	14:59, 23 October 2012			2
Mute Swan	<i>Cygnus olor</i>	Green List	16:12, 23 October 2012			2
Mute Swan	<i>Cygnus olor</i>	Green List	15:26, 28 November 2012	1		
Mute Swan	<i>Cygnus olor</i>	Green List	16:34, 11 March 2013		2	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	09:14, 23 October 2012		6	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:48, 23 October 2012			22
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	16:04, 23 October 2012			10
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	08:29, 18 December 2012			1
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	08:31, 18 December 2012		2	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	08:50, 18 December 2012		3	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	09:00, 18 December 2012		1	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	09:03, 18 December 2012		5	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	09:11, 18 December 2012		9	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	09:12, 18 December 2012		12	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	09:57, 18 December 2012		18	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:04, 18 December 2012		5	

Common name	Scientific name	Status	Survey date	Maximum number of individuals recorded flying less than 12m above ground level	Maximum number of individuals recorded flying between 12m and 20m above ground level	Maximum number of individuals recorded flying more than 20m above ground level
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:30, 18 December 2012		1	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:31, 18 December 2012			2
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:35, 18 December 2012			240
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:36, 18 December 2012			23
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:42, 18 December 2012		5	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	13:18, 18 December 2012		10	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	13:37, 18 December 2012			2
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	13:47, 18 December 2012		12	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:13, 18 December 2012		9	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:23, 18 December 2012		25	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:24, 18 December 2012			5
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:27, 18 December 2012			20
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:27, 18 December 2012			20
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:28, 18 December 2012			22
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:35, 18 December 2012			28
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:58, 18 December 2012		1	
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	15:02, 18 December 2012			29
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	15:36, 18 December 2012			14
Greylag Goose	<i>Anser anser</i>	Amber List	15:44, 18			3

Common name	Scientific name	Status	Survey date	Maximum number of individuals recorded flying less than 12m above ground level	Maximum number of individuals recorded flying between 12m and 20m above ground level	Maximum number of individuals recorded flying more than 20m above ground level
(Feral)			December 2012			
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	14:46, 18 December 2012			27
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:16, 22 January 2013			350
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:17, 22 January 2013			36
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:21, 22 January 2013	250		
Greylag Goose (Feral)	<i>Anser anser</i>	Amber List	10:34, 22 January 2013			60
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:27, 23 October 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:53, 23 October 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:56, 23 October 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	09:08, 23 October 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	09:30, 23 October 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	09:31, 23 October 2012			2
Cormorant	<i>Phalacrocorax carbo</i>	Green List	09:50, 23 October 2012	1		
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:04, 23 October 2012			3
Cormorant	<i>Phalacrocorax carbo</i>	Green List	16:18, 23 October 2012		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:57, 23 October 2012		3	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:08, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:46, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:47, 28 November 2012		1	

Common name	Scientific name	Status	Survey date	Maximum number of individuals recorded flying less than 12m above ground level	Maximum number of individuals recorded flying between 12m and 20m above ground level	Maximum number of individuals recorded flying more than 20m above ground level
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:58, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:10, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:23, 28 November 2012		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:31, 28 November 2012		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:34, 28 November 2012		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:50, 28 November 2012		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:53, 28 November 2012		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	13:15, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	14:47, 28 November 2012			2
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:11, 28 November 2012		2	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:14, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:16, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:27, 28 November 2012		2	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:30, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:37, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:44, 28 November 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:46, 28 November 2012		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:50, 28 November 2012		1	
Cormorant	<i>Phalacrocorax</i>	Green List	09:39, 18			1

Common name	Scientific name	Status	Survey date	Maximum number of individuals recorded flying less than 12m above ground level	Maximum number of individuals recorded flying between 12m and 20m above ground level	Maximum number of individuals recorded flying more than 20m above ground level
	<i>carbo</i>		December 2012			
Cormorant	<i>Phalacrocorax carbo</i>	Green List	09:58, 18 December 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:06, 18 December 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:21, 18 December 2012		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	13:42, 18 December 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:19, 18 December 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:22, 18 December 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:41, 18 December 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:33, 18 December 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:54, 18 December 2012			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:22, 22 January 2013		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:24, 22 January 2013	1		
Cormorant	<i>Phalacrocorax carbo</i>	Green List	09:22, 22 January 2013		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:06, 22 January 2013	1		2
Cormorant	<i>Phalacrocorax carbo</i>	Green List	14:14, 22 January 2013	1		
Cormorant	<i>Phalacrocorax carbo</i>	Green List	14:31, 22 January 2013		1	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:15, 22 January 2013		2	
Cormorant	<i>Phalacrocorax carbo</i>	Green List	15:17, 22 January 2013			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	16:03, 22 January 2013			1



Common name	Scientific name	Status	Survey date	Maximum number of individuals recorded flying less than 12m above ground level	Maximum number of individuals recorded flying between 12m and 20m above ground level	Maximum number of individuals recorded flying more than 20m above ground level
Cormorant	<i>Phalacrocorax carbo</i>	Green List	16:10, 22 January 2013			2
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:30, 20 February 2013			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	08:54, 20 February 2013			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	09:19, 20 February 2013			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	09:50, 20 February 2013			1
Cormorant	<i>Phalacrocorax carbo</i>	Green List	10:07, 20 February 2013	1		
Grey Heron	<i>Ardea cinerea</i>	Green List	10:51, 20 February 2013	1		
Grey Heron	<i>Ardea cinerea</i>	Green List	13:38, 20 February 2013		2	
Grey Heron	<i>Ardea cinerea</i>	Green List	15:01, 20 February 2013	1		
Grey Heron	<i>Ardea cinerea</i>	Green List	10:12, 11 March 2013		1	

5.4.16 Key species of importance<sup>35</sup> were recorded at the following locations. The woodland, wetland and farmland habitats within the Balsall Common and Hampton-in-Arden area (CFA23) and Birmingham Interchange and Chelmsley Wood area (CFA24) supported a more diverse assemblage of bird species than within the urbanised part of Birmingham.

5.4.17 The key areas of wintering and passage bird habitat within this Route Section which have been confirmed by field survey were Marsh Lane Nature Reserve to Patrick Farm, Park Farm and the land north of Park Hall SINC. Marsh Lane Nature Reserve provided habitat for wigeon and snipe. Park Farm provided habitat for golden plover, barn owl and skylark. The land north of Park Hall SINC provided habitat for teal and snipe.

<sup>35</sup> In reference to the national bird population estimates. Musgrove, A. et al (2013). Population estimates of birds in Great Britain and the United Kingdom. British Birds, Vol 106, No 2, pp 64-100

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